JULY 10, 1923

THE RUBBER AGE

VOL. XIII. NO. 7

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THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XIII. JULY 10, 1923 No. 7

DeLISSER PASSES AWAY AFTER SEVERE ILLNESS

Was Founder of Ajax Rubber and Recently Elected President of the Rubber Association—Actively Interested in Many Civic Organizations.

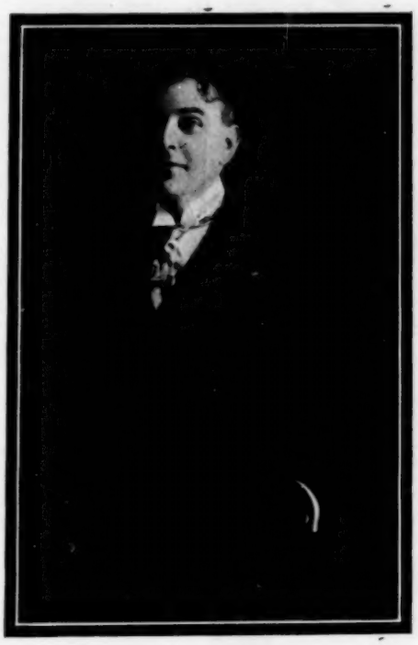
One of the pillars of the rubber industry in the person of Horace DeLisser has passed on. Not being able to throw off an illness which confined him to his home, 200 West 57th Street, New York City, for the past two months, Mr. DeLisser died on June 26, being in his fifty-seventh year.

Mr. DeLisser was one of the pioneers in the tire industry, having been in the early part of his life a bicycle tire salesman. In 1905 he organized and founded the Ajax Rubber Company, which in the ensuing years established itself as an important factor in the tire manufacturing industry.

At the time of his death Mr. DeLisser was chairman of the board of directors of the Ajax Rubber Company and president of The Rubber Association of America. Mr. DeLisser resigned as president of Ajax several years ago to become chairman of the Board of Directors. Besides being connected with Ajax Mr. DeLisser was also a member of the Arbitration Society and was one of the most active members of the Orphan's Automobile Day Association, which is conducted annually for the benefit of the orphans of New York City.

He was president of the Broadway Association, and could be counted upon for enthusiastic and intelligent support of commendable civic or other activities. Mr. DeLisser was also a Shriner, being a member of Pacific Lodge; was a prominent member of the Lotos, a member of the New York Athletic Club, and the Rotary and Lambs Clubs in New York City.

He was born in Jamaica, British West Indies, September 18, 1866, being the son of the late Edwin and Hannah Lopez DeLisser. Surviving are his widow, Mrs. Ione Maggard DeLisser and a brother Rudolph DeLisser. Mr. DeLisser was buried from the Masonic Temple, 23rd Street and Sixth Avenue, New York City, on June 29.



Horace DeLisser

KELLY-SPRINGFIELD HAS CLOSED AKRON PLANT

The Kelly-Springfield Tire Company's plant, Akron, Ohio, shut down on June 30 for an indefinite period. Close to 500 men have been employed in the plant, which has been turning out about 1,800 casings a day. Workers have been laid off during the past few weeks, officials anticipating a shut-down. There is a possibility that the plant may not reopen. The Cumberland plant was built, it is said, with the understanding that branch plants would be closed down.

Activities in Akron

The Goodyear and Goodrich companies will close their plants for several days during July in order that inventories may be taken. Officials of both companies, however, state that there will be no curtailment in production. Similar conditions prevail at the Firestone Tire and Rubber Company's plant, while the Miller Rubber Company reports seasonable curtailments of production. Seiberling reports that business is normal.

DECREASE IN TIRE PRICES CONTINUES

Following Lead of Firestone Tire Price Decreases Have Been Announced by all Larger Manufacturers — Dealers Protest Against Cut in Prices.

NEW YORK, July 2, 1923—One after the other all the leading American tire manufacturers have decreased their consumer prices to meet the June 11 cut of Firestone. Some even went under the Firestone list with the result that Firestone has made a second cut to meet the lower lists.

The retail industry is in a chaotic state as a result of the price cuts in the middle of the selling season. Far from stabilizing the industry as H. S. Firestone predicted when he made his original cut, dealers and consumers all over the country are refusing to buy fearing further declines. Dealers have, through their National Tire Dealers Association, gone on record expressing "vigorous condemnation" of the Firestone action in starting a general price decline movement. "Unsettling to the tire industry without any offsetting gain to anyone" is how the dealers described the Firestone cut in resolutions adopted by their association.

Dealers are greatly overstocked as a result of the backward season and large purchases made on the strength of price advancements early this year.

Following are some of the cuts already made with effective date and percentage given wherever available:

NAME	DATE EFFECTIVE	PNEUMATICS	TUBES	SOLIDS
Brunswick	6/11	—	—	—
Federal	6/11	—	—	—
Firestone	6/11	10	10	—
Fisk	—	9-11	9-11	—
General[1]	7/2	7-10	7-10	—
Goodrich	6/25	7-13	7-13	2-10
Goodyear[2]	6/11	6-13½	—	—
Hewitt	6/23	—	—	—
Hood[3]	6/22	7-15	10	—
Lee[4]	—	—	—	—
Mason	6/15	—	—	—
Michelin	6/11	—	—	—
Miller	6/14	7-10	—	—
Mohawk	7/1	—	—	—
Pennsylvania	6/15	5-15	—	—
Savage	6/11	—	—	—
Studebaker	6/15	—	—	—
United States[5]	6/23	4-10	—	10

1. Revert to Jan. 20 list
2. All-weather SS Cords—13½%; Wingfoot cords 13½% to consumers and 18% to dealers; clinchers from 6-13%.
3. SS Cords, 15%; Cl. cords, 7%.
4. Discontinued consumer list
5. Fabrics and SS Cords, 10%; Cl. cords 4%; Solids and pneumatic truck 10% except 6-7-8" sizes; tubes revert to Jan. 2 list.

EGYPT RUBBER MARKET IS LARGELY BRITISH

The United States supplied a smaller percentage of the Egyptian imports of every class of rubber products, except tires. Egyptians ordinarily take about 65,000 pairs of canvas rubber soled shoes annually. At present American manufacturers are getting less than 1 per cent of that business in Egypt. Egypt, furthermore, has no preferential tarriff, imports of rubber goods from all countries being subjected to an 8 per cent ad valorem duty, plus ½ per cent as a quay surtax.

In 1922 American manufacturers, however, supplied Egypt with 22 per cent of tires by volume and 23 per cent by value, whereas the United Kingdom got 33 per cent by volume and 21 per cent by value, France supplying 26 per cent by volume and 34 per cent by value, Germany getting 8 per cent by volume and 7 per cent by value. Apparently France sold mostly cord tires in Egypt, while American manufacturers offered both cord and fabric.

It is not surprising to find England furnishing the greater part of the rubber hose, tubing, sheet and cord, and waterproofed textiles, for the British industry has long been of at least equal strength with Americans in these lines, and their better transportation facilities and long connection with the Egyptian market gives them a considerable advantage in the trade. The United States sells considerable amounts of rubber thread in France, Italy, and Switzerland, and these countries with England and Germany which manufacture rubber thread locally, get most of the Egyptian business in elastic textiles.

Emile Kiene Is Dead

Emile Kiene, president of the Dubuque Rubber and Belting Co., recently died at his home, 2441 Broadway, Dubuque, Iowa. As Mr. Kiene had been ill for some time his death was not at all unexpected. Up until he was stricken ill Mr. Kiene was actively engaged in the rubber industry. Mr. Kiene was an old resident of Iowa, having been born in Dubuque on October 12, 1869. He was a Mason, a Knights Templar, an Elk and also belonged to the Dubuque's Traveling Men's Association. He is survived by his wife, two daughters, two sons, two sisters and three brothers, one of whom lives in Poughkeepsie, N. Y., while Arnold Kiene resides in San Antonio, Texas.

Chemists Elect Officers

The Manufacturing Chemists' Association of the United States held its fiftyfirst annual meeting in New York City recently, and elected the following officers; President, Elon H. Hooker, Electrochemical Co., New York City; vicepresident, C. Wilbur Miller and Dr. M. C. Whitaker; treasurer, Salmon W. Wilder, Merrimac Chemical Co., Boston; Secretary, John J. Tierney, Washington. D. C. Executive Committee consists of the following members: Henry Howard, Grasselli Chemical Co., Cleveland, Ohio, chairman; Lancaster Morgan, General Chemical Co., New York; Adolph G. Rosengarten; Robert T. Baldwin; H. H. Dow, Dow Chemical Co., Midland, Mich.; William H. Bower, Henry Bower and Dr. Charles L. Reese, E. I. du Pont de Nemours & Co., Wilmington, Del.

N. J. Zinc Purchases Durex

Announcement has been made by the New Jersey Zinc Co. of the purchase of the Durex Chemical Corporation, manufacturers of barium products with plants at Sweetwater, Tennessee. The new officers of the Durex company are: President, Edgar Palmer; vice-president, A. P. Cobb; secretary, Albert B. Schultz, while E. V. Peters has been appointed general sales manager. The compahy is located at 160 Front St., N. Y. City.

Ajax Balks At Building Costs

The Ajax Rubber Co. is asking for a one year's extension of time before starting work on its million dollar factory in Sandusky, O. A referendum will be submitted to subscribers to the Ajax fund for the granting or denial of the extension. About 3 years ago the company purchased a 90 acre site West of Sandusky upon the condition that the company erect a factory there. About $120,000 was subscribed by residents of Sandusky for the purchase of the property. The present contract for the building of the factory expired June 22. The company is said to be doing a large business in its present factories in Trenton. The high cost of building is the reason for the company's delay in its building program.

Dunlop Tire Production Up

Since March 20 the Buffalo plant of the Dunlop Tire and Rubber Corporation of America has been running on a weekly schedule of about 2,600 tires a week. The company is planning to increase production 500 tires a week, until the total weekly production reaches the 12,000 mark. This schedule is expected to be maintained until next Spring.

Mid-West Seeking Advice

In a letter sent to members under date of June 30, The Mid-West Rubber Manufacturers' Association is asking members to signify their preference in the matter of affiliating with the Rubber Association of America, or the newly formed American Rubber Manufacturers, Inc. or whether they prefer to maintain their present organization.

A questionnaire is enclosed with each letter on which replies are to be sent to C. S. Sutherland, Secretary of the Association.

General Quarterly Dividend

The General Tire and Rubber Co., Akron, O., has declared its regular quarterly dividend of 1¾ per cent on its preferred stock, payable July 1, to stockholders of record, June 20.

BUSINESS IS NORMAL IN CUYAHOGA FALLS

Although production has been curtailed slightly two officials of Cuyahoga Falls rubber factories state that business is proceeding normally for this season of the year. Earl J. Williams of the Eclat Rubber Co., Cuyahoga Falls, O., asserts that his company has felt no depression but that there has been no increase in production. Men are being added daily to that company's forces —the concern manufacturing radiator hose and tires for children's vehicles. The Falls Rubber Co. has curtailed production somewhat, having discarded all Saturday shifts. The Marathon Company, on the other hand, states that a gradual increase in the working force is being made. When the Mason Tire and Rubber Company in Kent closed down about 200 workmen living in Cuyahoga Falls were affected.

Plans Habirshaw Reorganization

A committee has prepared a plan for the reorganization of the Habirshaw Electric Cable Company, the Habirshaw Electric Cable Company, Inc., the Electric Cable Co., and the Bare Wire Co. The plan among other things provides for the organization of a new company which will acquire the properties of the various Habirshaw companies. An issue of $1,500,000 of preferred stock will be authorized by the new company, divided into 15,000 shares of $100 par value. The preferred stockholders will have a voting power on a par with the common.

The preferred stock is to be used for sale to depositing creditors and the underwriting syndicate. Under the plan 300,000 shares of common stock is to be authorized. Of this 150,000 shares will be distributed to depositing creditors and 150,000 shares will be used for sales to depositing creditors and the underwriting syndicate.

Dillon, Read & Co. have formed an underwriting syndicate which has agreed to purchase 15,000 shares of preferred and 150,000 shares of common of the new company, less such amount as may be subscribed to. All deposits under the plan and agreement must be made on or before July 30.

Brouse Joins American Tire

The American Tire and Rubber Co., Akron, O., has announced that Richard W. Brouse has been appointed sales manager. For fourteen years Mr. Brouse was in the employ of the B. F. Goodrich Co., and since 1922 was the Goodrich Manufacturers' Sales Representative for the Eastern District with headquarters in Cleveland. He had previously been in the Philadelphia and Buffalo branches as Assistant Manager and Branch Manager respectively.

Firestone Gets Degree

Mount Union College, Alliance, Ohio, recently conferred an honorary degree of doctor of business administration upon Harvey S. Firestone. Mr. Firestone also addressed the graduating class.

MASON STATEMENT IS SATISFACTORY

Sales of over $3,500,000 for First Four Months of 1923 — Current Assets of $1,900,000 Shown in Balance Sheet as of April 30, 1923

In a statement issued on June 29, the Mason Tire and Rubber Co., Kent, Ohio, shows current assets in its balance sheet as of April 30, 1923, of $1,963,716 and current liabilites of $1,272,587. Current cash assets include $957,747 cash in bank and $1,005,969 in accounts, notes and trade acceptances less reserves.

In the statement accompanying the report W. A. Cluff, secretary, says:

"Recession in sales demand during the last few weeks, due to the backward spring, has been experienced by all manufacturers alike; and this company is following the conservative policy, which has always prevailed. The last week of very hot weather in this section as well as throughout the entire country has been quite noticeable in tire sales, and, we believe, a normal demand for the present season now exists.

"This company is also holding itself in a liquid cash position, as is indicated from the Financial Statement. Sales for the first four months, as represented by this statement, were somewhat in excess of Three and One-half Million dollars."

The statement is herewith published in full:

The Mason Tire & Rubber Company

BALANCE SHEET

As at the Close of Business April 30, 1923

Assets

CURRENT ASSETS			
Cash in Bank		957,747.11	
Accounts, Notes, and Trade Acceptances			
Less Reserves		1,005,969.30	
			1,963,716.41
INVENTORIES			
Raw Materials		468,514.08	
Work In Process		264,617.26	
Finished Product		1,199,512.36	
Sundry Supplies, Etc.		91,508.98	
			2,024,152.68
			3,987,869.09
Charges Deferred to Future Operations			332,934.89
Claim for Refund Federal Taxes and Transportation Claims			53,275.40
Investments			218,216.99
PLANT & EQUIPMENT			
Land		94,419.55	
Uncompleted Construction		63,172.31	
Buildings	1,922,477.55		
Machinery & Equipment	2,853,423.91		
	4,775,901.46		
Less Reserve for Depreciation	653,463.23		
		4,122,438.23	4,280,030.09
Goodwill and Organization Expense			1,243,056.16
TOTAL ASSETS			10,115,382.62

Liabilities

Current Liabilities			
Notes and Accounts Payable			940,049.04
Accrued Wages, Interest, Etc.			159,838.54
Reserve for Federal Income Taxes			172,699.70
			1,272,587.28
First Mortgage 20 Year 7% Sinking Fund Gold Bonds			2,000,000.00
Preferred Dividend Warrants Without Maturity Date			240,747.55
Miscellaneous Reserves			94,597.71
7% Cumulative Preferred Stock Issued			6,128,990.00
Common Stock Without Nominal or Par Value issued at Declared Value of	500.00		
Surplus		377,960.08	378,460.08
TOTAL LIABILITIES			10,115,382.62

HAWKEYE NOT BANKRUPT

In the June 10 issue of THE RUBBER AGE it was stated that a receiver had been appointed for the Hawkeye Tire and Rubber Co., Des Moines, Ia. This report is untrue according to President Christie and we are glad to give here the correct facts. Two stockholders asked for the appointment of a receiver but later changed their minds and voluntarily withdrew their petition.

Mr. Christie further adds that the company will be producing cord tires in six weeks, orders for equipment being placed now.

Government Rubber Experiments

The United States Department of Agriculture has established a small experimental station near Torrey Pines, California, in order to determine the possibilities of growing rubber in the United States. K. F. Kellerman, associate chief of the Bureau of Plant Industry, also states that similar experimental work along those lines are being expected to be conducted on the government's property near Bard Mesa, California, as well as at Sacaton, Arizona. An experimental station is contemplated in southern Florida, the details of which have not yet been contemplated.

S.A.E. HOLDS SEMI-ANNUAL MEETING

Meeting Held at Spring Lake Brings Together about 700 Members — Discussion Centered Around Four-Wheel Brakes and Balloon Tires.

The Society of Automotive Engineers met at Spring Lake, N. J. June 19 to 23. Discussion centered about low pressure tires and four-wheel brakes. As a group the engineers favor these developments as eventualities, but believe that considerable time should be given to study their peculiar requirements and general influence on car performance before they are placed on the market.

Exhibits of low pressure tires were barred from the meeting, but demonstrations were permitted. Cars equipped with large section low-pressure tires, "balloon tires," were supplied by Firestone, Fisk, Goodrich, Miller and United States.

The convention was the second largest mid-summer meeting in the society's history. Approximately 700 members journeyed to Spring Lake, one-third of these coming from Detroit and Cleveland territory. Total membership of all classes totals 5,630, of which 2,762 are full members and 1,501 associate members. This is a net gain of 87 members over last year.

One of the features of the Society's work is that conducted in co-operation with other organizations notably its researches into the fuel question and its work on highways. Since last April an investigation to be conducted by the Bureau of Public Roads, Washington, D. C., the Society of Automotive Engineers the National Automobile Chamber of Commerce and the Rubber Association of America has been under way. The purpose of the investigation is to obtain a measure of the relative effect on the road by various vehicles; to obtain definite information on which to base motor vehicle legislation; to obtain special information of value in the design of motor vehicles and tires.

James E. Hale of the Firestone Tire and Rubber Co. read a paper on air cushion tires, illustrated with slow moving pictures. One of the tire men said that it was up to the car designer to overcome disadvantages introduced by the very large tire. The net result of Mr. Hale's paper is that it increased interest among automobile designers to give the new tire a thorough trial. Mr. Hale's paper will appear in the July 25 issue of THE RUBBER AGE.

Newton Falls Doing Well

Reports coming from Newton Falls, O., state that the Newton Falls Rubber Co. is now turning out about 100 tires a day and that the company is employing about 75 men. Officials of the company state that output will soon reach about 250 tires a day.

CENSUS FIGURES SHOW GROWTH OF INDUSTRY

Rapid Strides Made in the Rubber Manufacturing Industry Are Shown in 1921. Figures Issued by the Bureau of Census.

That the rubber industry is constantly growing and expanding becomes evident when, recently published statements on the rubber industry issued by the Department of Commerce, Bureau of Census, are reviewed.

The extent of the rubber industry can readily be comprehended when the number of establishments, wage earners and value of manufactured products of 1921 are compared with those of 1919, 1914, 1909 and 1904. In 1921 there were 496 rubber companies in this country, employing 103,273 workers, against 477 companies in 1919, employing 158,549 persons. Total wages in 1921 averaged about $123,613,000, compared with $193,763,000 in the boom year of 1919, and $44,167,000 in 1914 and $25,137,000 in 1909. At the beginning of the century there were but 265 rubber companies in the states, against a total of 496 in 1921.

Extent of Tire Industry

All told there were 454 companies manufacturing tires and inner tubes in 1921, employing 76,378 individuals with value of products given as $496,123,335. In this phase of the industry Ohio leads, claiming 58 tire factories and 28,822 workers. Total value of tires and tubes manufactured in Ohio were $291,759,680, which is approximately 58.8 per cent of the total percentage distributed. New Jersey ranked second in 1921 with 21 tire companies employing on an average of 4,383 workers with products valued at $30,193,886. Pennsylvania, Wisconsin, Connecticut and Indiana ranked forth sixth, seventh and eighth respectively. New York ranked tenth with 10 companies and 10,382 workers. Total production of bicycle tires and inner tubes for Pennsylvania in 1921 was $84,313, or 27.6 per cent of the total.

In 1921 in Akron, Ohio, there were 14 companies manufacturing tires and tubes, employing 23,301 wage earners and whose products were valued at $250,117,173. Trenton, N. J. could boast of five companies with 1,449 workers and products valued at $9,464,535. New New York had but 3 tire companies, while, Omaha, Nebraska, had the same number. Other large cities of importance in the industry for which statistics cannot be shown without disclosing the operations of individual establishments are: Detroit, Los Angeles, Hartford, Conn., Providence, R. I., Denver, St. Louis, Yonkers and Bridgeport, Conn.

Massachussetts Leads in Footwear

In the manufacture of rubber boots and shoes Massachusetts led in 1921 with 8 concerns which employed 9,347 workers and whose products were valued at $36,700,126, or 39 per cent of the total output for the country. Connecticut ranked fourth in this field, having 5 concerns and 4,359 workers, while the total of rubber shoe companies in all other states number 11, employing 10,182 workers with products valued at $44,520,809. While Massachusetts ranked first, Indiana was second and Rhode Island third. Indiana led in the production of rubber boots, but Massachusetts topped the list in rubber boots and shoes. No figures can be given for Indiana or Rhode Island without disclosing the operations of individual establishments.

The total value of rubber belting and hose in 1921 was $31,208,449, of which New Jersey contributed $10,468,456, Ohio $8,755,484, Massachusetts $4,450,337, New York $2,238,917, California $1,500,943, and all other states $3,794,312. In the manufacture of miscellaneous rubber goods—not specified elsewhere—such as druggists' and stationers' sundries hard rubber goods, rubberized fabrics and rubber clothing Massachusetts, New Jersey and New York were the three leading states, and together they reported 65.5 per cent of the total va'ue of products, which total stood at $25,442,340.

CONDITIONS SOUND IN AUTOMOTIVE INDUSTRY

At the regular meeting of the Board of Directors of the Motor and Accessory Manufacturers Association held on Friday, June 29th, the following statement was authorized:

Conditions in the automotive industry are not only outwardly flourishing, but fundamentally sound.

The volume of passenger car manufacturing continues to be satisfactory, with sales equally so. Wide distribution of passenger cars has been accomplished this season. In terms of credit these sales appear to be sound.

Truck manufacturers are increasing their production and sales. This branch of the automotive industry is coming back in a spirited manner.

In the matter of orders, parts manufacturers are well satisfied and gratified at the lack of any seasonal reduction or slowing down.

Bank support is remarkably good for the vehicle makers and the companies supplying them with material and parts. Collections are reported as being uniformly good. The general credit condition is excellent.

There is no evidence of deferments, cancellations or suspensions of current manufacturing schedules. This shows that the car manufacturer and parts manufacturer have been wise in the matter of their committments.

Labor is well employed in all branches of the automotive industry and continues to show a higher rate of efficiency than at any time since 1920.

These statements are based on first-hand reports from leading executives and credit managers of the principal companies manufacturing parts, units, and equipment for the automotive industry. Four hundred and thirty of these companies are affiliated with the Motor and Accessory Manufacturers Association.

COMMISSIONS WILL LEAVE SOON FOR BRAZIL

The personnel of the field expedition that is to investigate the Amazon region in behalf of the Department of Commerce will be as follows:

W. L. Schurz, United States Commercial Attache to Brazil, in charge, assisted by O. D. Hargis, Rubber Plantation Expert; Dr. C. F. Marbut, Chief, Division of Soils of the Department of Agriculture; A. O. Pierro and A. R. Bjorkland, of the Department of Commerce, Secretarial Assistants.

The above party will cooperate with four experts from the Department of Agriculture. They will sail from New York direct to Para about the middle of July. The duration of the investigation of the Department of Commerce is expected to be about eight months.

Mr. D. M. Figart, a Special Agent of the Department who is well known in Far Eastern rubber circles, sailed from the United States last month on his way to southern India, Ceylon, British Malaya and the Dutch East Indies, where he will make a comprehensive study of all phases of the rubber industry.

Mr. J. W. Van der Laan, of the Department of Commerce, is accompanying Mr. Figart as Secretarial Assistant.

Two other parties, one for northern South America, Central America and Mexico, and one for the Philippines are nearing completion. The announcement of their personnel will be given out later.

U. S. BUREAU FAVORS PNEUMATIC TIRES

An investigation including the structural design of roads, road material and impact conditions produced by motor trucks on road surfaces is being conducted by the United States Bureau of Public Roads at the Arlington, Va., Experiment Station. As a result truck tire manufacturers are evidencing considerable interest in the Bureau's report.

Thus far the conclusions are: Impact depends largely on the kind and condition of the tire. Thin or worn solid rubber tires, even though they be very wide, produce high impact forces. Pneumatic tires offer the greatest influence in reducing impact forces, and with their use the impact increases only slightly with the speed of the truck. Cushion tires, having a degree of softness and deflation between solids and pneumatics, offer corresponding advantages in reducing impact.

Pittsburgh Dealers Organize

Tire Dealers in the vicinity of Pittsburgh, Pa., have recently organized an association to be known as The Greater Pittsburgh Tire Dealers' Association. The idea behind this organization is to protect the interests of tire dealers and to perfect a credit system whereby dealers will suffer a minimum of losses. The association has applied for a charter, the following names having been appended as incorporators: Clay D. Manville, A. L. Glick, James A. Breen, George A. Tierney and H. Trevoe Smith.

IMPORTS OF RUBBER SETS RECORD IN 1923

National City Bank of N. Y. Issues Statement on Rubber Imports for Fiscal Year Ending June 30—Increase due to Wider Use of Automobiles.

American consumption of rubber expanded tremendously during the last twelve years, but there has been a simultaneous fall in price, according to the National City Bank of N. Y. City.

Rubber importations amounted to only 72,000,000 pounds in 1911, while in the current fiscal year they aggregated approximately 775,000,000 pounds. On the other hand prices at the present time are far below those of 1911, in which year the average import price was $1.06 per pound, in the fiscal year 1922, 15 cents per pound, and in the nine available months of the fiscal year 1923 average 17 cents per pound.

The quantity of rubber brought into the United States in the last dozen years is 4,254,000,000 pounds, and the value nearly $2,000,000,000. Imports of the fiscal year 1923 are larger in quantity than those of any other year in the history of the rubber trade, having been approximately 775,000,000 pounds, against 568,000,000 in 1922, and 632,000,000 in the high record year 1920.

"This tremendous growth is largely due to the increased use of the automobile, which utilizes fully three-fourths of the rubber imported into the United States," says the bank, "and as this country imports fully three-fourths of the rubber produced in the world we may assume that the American automobile utilizes over one-half of the rubber of the world."

Exports or rubber manufactures have grown from $10,000,000 in 1910 to approximately $36,000,000 in 1923.

The Malayan Peninsula and Dutch East Indian Islands which produce the bulk of the world's plantation rubber, are nearly opposite us on the other side of the globe. Of the 569,000,000 pounds imported in the nine months ending with March, 401,000,000 came from the British East Indies, 82,000,000 from the Dutch East Indies, and 24,000,000 from Brazil while of the 29,000,000 coming from England and 8,250,000 from the Netherlands, a large proportion is the product of their Oriental colonies.

The following table shows the quantity, value and price per pound of the rubber imported into the U. S. since 1911.

Fiscal Year	Pounds	Dollars	Average Price per Pound
1911	72,046,000	$76,245,000	$1,058
1912	110,210,000	93,013,000	.844
1913	113,384,000	90,170,000	.795
1914	131,995,000	71,220,000	.540
1915	172,068,000	83,030,000	.483
1916	267,775,000	155,045,000	.579
1917	333,374,000	189,329,000	.568
1918	389,599,000	202,800,000	.521
1919	402,472,000	157,928,000	.392
1920	632,392,000	274,156,000	.434
1921	356,975,000	114,639,000	.321
1922	568,381,000	86,751,000	.152
1923*	775,000,000	145,000,000	†.172

*Estimate based on nine months official figures reported.
†Average price for nine months.

A 12 MILE TRAIN

In 1922 the Goodyear Tire and Rubber Company used 26,000 tons of various compound ingredients. If 25 tons be allowed to a car it would take a train of 1,040 cars to supply Goodyear with chemicals each year. If 350 tank cars of liquid solvents be added, a 12 mile long train would be formed.

NEW YORK TO GET 1923 TIRE DEALERS' CONVENTION

Directors of The National Tire Dealers' Association have selected New York City as the scene of the annual convention for 1923. Dealers will meet in this city on November 13-14-15, with the Greater New York City Tire Dealers' Association as host.

Trade conditions were also discussed by the directors at their Chicago meeting, and reports of a recent survey of tire dealers in all parts of the country showed that they are overstocked, having sufficient requirements for 60 to 90 days. This situation was brought about, dealers say, by the backward season and the heavy purchases made on the strength of price advancements early in the year. Under normal conditions dealers should have entered June with about 30 days stock on hand.

Directors report that dealers have been demoralized by the recent cut in tire prices, and that in all probability many will suffer substantial losses this year. Dealers maintain that lower prices will not stimulate sales, and, therefore, a set of resolutions were adopted by the directors condemning the Firestone Company in starting the price decline movement on June 11.

New York City was selected as the convention city after the directors had considered Akron, Chicago, Flint (Mich.), and Washington, D. C.

CRUDE RUBBER SHIPMENT RATES ARE REASONABLE

The Interstate Commerce Committee dismissed the complaints on June 19 filed by the Sprague Tire and Rubber Co., Omaha, Neb., and the Firestone Tire and Rubber Co., Akron, O., on the grounds that the rates charged these companies by the Union Pacific and other railroad companies on the shipments of crude rubber imported from Pacific ports were not reasonable. Recently the Sprague company shipped two carloads, one from Tacoma and the other from Seattle, Wash., to Omaha, while Firestone shipped 216 carloads from various Pacific ports to Barberton and Akron, Ohio. Charges on all shipments were collected at the application rate of $1.565 per 100 pounds.

WASTE MATERIAL DEALERS ACTIVITIES DURING JUNE

At the regular quarterly meetings of the National Association of Waste Material Dealers held in New York City on June 20 and 21 it was proposed that consumers be permitted to come into the association either as a member or as an associate member. It is said that such an arrangement would bring about a closer co-operation between dealer and consumer.

* * *

The next quarterly meeting of the association is scheduled to be held in Chicago during September. Increase of membership in the Middle West and West makes it advisable to hold one or two meetings a year in some Western city. It is planned to charter a special car to carry Eastern members to Chicago.

* * *

The Board of Directors at their meeting on June 20 authorized the formation of a Southern Division as soon as 15 members had been secured from the Southern States.

* * *

Thirteen companies were elected members of the association at its last meeting in New York City, among them being the Olympic Rubber & Metal Co., 270 Hayward Street, Brooklyn, and S. Jaffe and Co., 232 E. 146 Street, N. Y. City.

MECHANICAL GOODS IN DEMAND IN JAMAICA

Canvas shoes with rubber heels and soles, and heels and soles separately, are in demand in Jamaica, Commercial Intelligence Journal, Ottawa, Canada, states. No statistics, however, are available, because such goods are included under the general head of footwear. Thousands of pairs of rubber heels are sold in Jamaica every year, the American product being favored by many. Two well-known Canadian lines also enjoy a considerable part of this trade. American manufacturers seem to have the edge on foreign competitors in the sales of tennis and gymnasium styles, as well as canvas shoes with rubber soles for ordinary street wear. Higher grade shoes are imported from England and Canada. All these articles are handled by retailers who sometimes buy through local manufacturers' representatives, but oftener through purchasing connections abroad.

Considerable quantities of garden hose are sold in Kingston and the suburbs, where most of the better-class houses have gardens each requiring a length of hose for watering. As Jamaica is almost entirely an agricultural country there is but little demand for rubber belting. England and the United States supply most of the surgical and sanitary requisites, but the value of imports is not large. There is an exceptionally good demand for hot-water bottles and a fair demand for baby soothers. The toy balloon is also in demand. At present there are 3,000 motor cars in Jamaica, and this number in all probability will increase.

RUBBER ASSOCIATION JUNE ACTIVITIES

The Specification Committee of the Mechanical Rubber Goods Manufacturers' Division of the Association met on June 1. Announcement was made at that time that the Proposed Standard American Railway Association Specifications for the Rubber Hose and Axle Light Belting, and the "General Instructions on Standard Methods of Testing," which were formulated jointly by the Committee and a Committee representing the railroads, will be presented as "Recommended Practice" to the A.R.A. Annual Convention, subject to modification during the coming year and adoption as "Standards" at the next convention of that organization.

The work of the Committee with the Rubber Goods Committee of the Federal Specifications Board, at Washington, in the co-ordination of Federal specifications for mechanical rubber goods, was reviewed, and several changes in certain existing and tentative specifications were recommended. This action was followed by a conference on June 14 between a Sub - Committee of the Association's Specification Committee and the Chairman of the Federal Board.

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On June 5, the Cycle Tire Committee of the Tire Manufacturers Division met at the Yale Club, New York. The Committee recommended to the Cycle Trades of America, an organization representing bicycle manufacturers, the adoption of certain tire sizes as standard. It is believed that action on this matter by the Cycle Trades of America will be taken at its September meeting.

The Committee also discussed the need for the improvement in adjustment conditions on bicycle tires, and recommended to the Executive Committee of the Tire Division that an educational poster on bicycle tires, somewhat similar to the "Are You Abusing Your Tires?" poster which relates to automobile tires, be printed and distributed to bicycle tire dealers throughout the country.

The elimination of butt-end bicycle tire tubes, the increasing requests received by the manufacturers for donations of motorcycle tires for races, etc., and several other matters relating to the bicycle and motorcycle tire trades were discussed.

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The postponed May meeting of the Board of Directors of the Association was held on June 6, at which matters of a routine nature connected with the work of the organization were considered.

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The Foreign Trade Division held its June regular meeting on the 12th. The Spanish, French and British tariffs, as they affect the importation of American-made rubber goods, received attention.

The Spanish edition of the Association's educational pamphlet entitled "Why Straight-Side Tires Are Better," will be distributed direct to dealers in South America by the export departments of the individual members of the Division, instead of from the Association office, the plan followed in previous instances. The Spanish edition of the poster "Are You Abusing Your Tires?", to be distributed to dealers in Cuba and Porto Rico, will be distributed in the same way.

Future meetings of the division will be conducted along conventional lines; i.e., the reading of papers by individual members on specific phases of rubber goods exporting and round-table discussion of it by those present. The next meeting will be held in Akron during the latter part of July.

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The Automobile Fabric Manufacturers Division met at the Yale Club on June 25th. Decision was reached to broaden the scope of the monthly statistics which are being compiled by the Association office covering the production and sale of auto fabrics, and, at the request of the Bureau of the Census, at Washington, to furnish the Bureau with the monthly grand total figures on production.

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The Executive Committee of the Tire Manufacturers Division met at the Lotos Club, New York, on June 27th.

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The June regular meeting of the Board of Directors was held on June 29th.

RESTRICTION RESTS ON ARTIFICIAL BASIS

"The industry [speaking of rubber growing] is only convalescent, not cured. While the industry depends on Government restriction of part only of the source of supply, it rests upon an artificial basis and not upon the more healthy foundation of supply and demand. Our real hope lies in increase of demand brought about by extension of the present uses and the discovery and development of new uses of our product. Not until, as a result of these, the demand equals the unrestricted supply at a profitable price will the industry rest upon a satisfactory commercial basis, nor will its position be considered sound by those who take the long and broad view of the matter."

Statement by Mr. Welch, chairman of the Rubber Plantations Investment Trust, Ltd., speaking at the general meeting of the company held in London recently.

MID-WEST HOLDS LARGE MEETING ON JUNE 12

About 90 members and guests attended the monthly meeting of the Mid-West Rubber Manufacturers Association, held in Chicago on June 12. This was said to be the largest monthly meeting ever held by the association.

In the forenoon the Board of Directors met, and the following were elected to associate membership: The Reynolds Machine Co., Massillin, O.; The *India Rubber Review*, Akron, O; The Stockston Commission Co., 100 Worth Street, New York City and The Akron Standard Mold Co., Akron, O.

During the luncheon that followed Mr. Firestone spoke, and said that very little tire business had been done during the month of May and early part of June. He attributed this slump to the fact that there was no price list out, and that there was an antipathy on the consumer's part to purchase tires without a set price list. According to Mr. Firestone the British are proposing to make the present restriction law even more drastic. He asserted that no government can justifiably restrict the production of any commodity and keep people out of work in order to satisfy a few stockholders. He predicted the repeal of the Stevenson restriction act.

J. B. Gableline, President, Standard Four Tire Co., followed Mr. Firestone and concurred with him in most of his statements. He particularly urged the elimination of credit on tires — the same as on any other legitimate article. The only way to solve this problem, Mr. Gableline said, is to get together and to eliminate the long terms that are now put out.

At the executive session held during the afternoon the question of forming a new association composed of rubber manufacturers only was discussed. Many of the members present did not favor a new organization at this time, they being unable to see where more benefit could be derived from another association in the rubber industry.

There were some interesting figures and facts given by one member present regarding the cost of growing and landing crude rubber in New York, saying that it has been proven that on one well regulated plantation operated by a large American manufacturer, rubber can be produced at 9½c per pound, and landed in New York for 16c or 17½c per pound, when sold to other manufacturers at 36c to 39c per pound, their profit per pound is about 11c, and the prospective earnings for this company the first six months of this year are $5,000,000. With such a large profit on rubber, he said, they do not care whether they make any money in their manufacturing end or not.

New Mold Plant Opened

The Ohio Gear and Machine Co., Kenmore, O., manufacturers of gears and molds, is now operating. The building in which the concern is operating is of concrete and steel, and cost about $20,000.

RECENT IMPORT DUTIES LEVIED ON RUBBER GOODS

Recent bulletins on new import duties on rubber goods issued by the Rubber Division of the Department of Commerce in conjunction with the Division of Foreign Tariffs are as follows:

India

There are no custom preferences accorded to any country by India.

The basis of ad valorem duty is the wholesale cash price, less trade discount, for which goods of the like kind and quality are sold or are capable of being sold, at the time and place of importation, without any abatement or deduction whatever, except of the amount of the duties payable on the importation thereof; or where such price is not ascertainable, the cost at which goods of the like kind and quality could be delivered at such place, without any abatement or deduction as aforesaid.

Goods chargeable with duty upon the value thereof, but for which a specific value is not fixed by law for the purpose of levying duties thereon, shall, without unnecessary delay, be examined by an officer of customs. If it appears that the real value of such goods is correctly stated in the bill of entry or shipping bill, the goods shall be assessed in accordance therewith.

The normal value of the rupee is $0.4866, actual rate of exchange variable.

Tariff No.	Articles.	Rate of Duty. (Ad valorem)
ex81	Belting of all materials for driv- machinery	2½%
181	Packing—engine and boiler— all sorts	15%
121	Pneumatic rubber tires and tubes for motor cars, motor trucks, motor cycles, and motor scooters	30%
	Pneumatic rubber tires and tubes for bicycles and tricycles	15%
126	Rubber tires and other manufactures of rubber, not otherwise specified	15%

Denmark

Customs duties levied on imports of rubber goods by Denmark are the same for all countries. The metric system of weights and measures is in use, the kilo being equivalent to 2.2046 pounds avoirdupois. Rates are stated in gold and paid in currency at current rate of exchange.

The value of goods, for the purpose of assessing customs duty, is the wholesale export price of the goods at the time when, and at the place where, they are purchased, plus the cost of the outer and inner packing, as well as all expenses for forwarding, insurance, etc., incurred up to the time of arrival at the place where they are to be cleared. Expenses incurred and charged separately after the goods are unloaded at the first Danish port (or frontier station) are not included in the value.

Conversion of foreign into Danish currency is made at the sight rates for the day on which the goods are purchased. If the date cannot be given and verified the customs officer shall take the rate for the invoice date, or the previous quotation if no rate was quoted for that date. If none of these dates can be ascertained the customs officer may take the rate for the day on which the goods are cleared. The Danish crown is equal to $0.268 at normal exchange, and was quoted on May 26, 1923, at $0.1854.

The importation of boots and shoes is prohibited, except under license from the Ministry of Commerce.

Tariff No.	Articles.	RATE OF DUTY (Crowns per net kilo)
	GUMS AND RESINS: *Rubber, Gutta Percha, Balata, and the like:*	
64	Boots and shoes, cycle and other tire covers (including motor tires with internal air chambers or other special devices), and hose-pipe in combination with textile materials:	
(a)	Covers and tires for motor cars and motor cycles	0.40 plus 6% ad valorem.
(b)	Other	0.50
	Ribbons, blocks, edgings, sheets and discs, with or without perforations, belts, rings, hose, cords, springs, bars, rolls, mats, carpets, horse shoes, corks (stoppers), soles, springs, solid tires and buffers for vehicles, and other similar simple manufactures:	
65	Motor car tires	0.12 plus 6% ad valorem.
66	Other:	
(a)	Combined with textile fabric or other dutiable materials and not elsewhere tariffed	0.16
(b)	Other	Free.

NOTE: Pneumatic tires and casings for motor cars and motor cycles, No. 64 (a); Other pneumatic tires and casings, No. 64 (b); Inner tubes containing valves or fabric, No. 64 (b); Inner tubes without valves or fabric, No. 66 (b); Solid tires for motor cars, No. 65; Other solid tires, No. 66 (b).

Norway

For the purpose of securing additional revenue, the Norwegian Government on June 11, 1923, increased import duties by 33⅓ per cent, except those on coffee, sugar, spirits, and commodities upon which conventional rates are granted. Rubber and rubber manufactures are not among the goods enjoying the benefits of reduced duties conceded by treaty or convention, and, therefore, are subject to the 33⅓ per cent increase mentioned above.

Borneo Restricts Rubber Exports

The Government at Sarawak, Borneo, has given notice that the quantity of plantation rubber which may be exported by any producer should not exceed 400 pounds an acre during any 12 month period, provided that in respect to the first 5 acres of any estate or garden or an area of less than 25 acres, such maximum quantity may be 530 pounds. In all cases prescribed quantity of rubber which may be exported should be calculated over quarterly periods. This action of the Government places Borneo in line with other British Colonies.

Portugal

Imports from the United States are subject to the minimum rates of duty. The conventional rates (plus the surtax) apply to imports from countries having most-favored-nation status with Portugal, and when no conventional rate is given the minimum rate applies. Among the countries having most-favored-nation status are the United Kingdom, France, Germany, Italy, Spain and Belgium. Certain elastic corsets and rubber tires and tubes are the only rubber manufactures having conventional rates.

The gold escudo is equivalent to $1.08. On May 3, the paper escudo was quoted at $0.0437. Import duties for the maximum and minimum rates are paid in gold. Conventional rates are payable in paper, but the surtax is paid in gold. All weights are net weight. Kilo = 2.2046 pounds avoirdupois. The following schedule became effective April 20, 1923.

Tariff No.	Articles.	MAXIMUM Escudos per kilo	MINIMUM Escudos per kilo.	CONVENTIONAL RATE Escudos per kilo.	CONVENTIONAL SURTAX Escudos per kilo.
	Rubber and the like:				
54	Raw	0.01	0.005	....	....
55	Prepared	0.02	0.01	....	....
423	Packing, stopping and cords of any vegetable fibre, yarn, fabric or trimming, with rubber or asbestos, or impregnated with other substances, with or without a metallic nucleus	0.10	0.07	....	....
	Corsets, stays and belts for women:	(each)	(each)	(each)	(each)
424	Of silk, pure or mixed, with or without rubber	4.50	3.00	....	....
425	Of net (other than silk), with or without rubber	1.70	1.10	....	....
426	Of fabrics not elsewhere specified, with rubber	1.50	1.00	....	....
	Corsets of hosiery fabrics of cotton, linen or hemp, or of cottton, linen or hemp fabrics with rubber or gutta percha	....	....	2.00 (per kilo)	0.80 (per kilo)
	Fabrics in which rubber is incorporated by any process, whether or not the fabric predominates:	(per kilo)	(per kilo)		
447	Of pure or mixed silk	3.00	2.00	....	....
448	Of wool, pure or mixed (except with silk)	1.00	0.50	....	....
449	Of cotton, linen or the like	0.60	0.30	....	....
	Fabrics in bands or strips (*tiras*):				
450	Of cotton, linen and the like impregnated with rubber or other materials, for electrical insulation	0.15	0.10	....	....
451	Of cotton, linen and the like with rubber superimposed, up to 10 cm. wide	0.015	0.01	....	....
549	Transmission belting of any material	0.045	0.03	....	....
595	Solid rubber tires with or without iron rim, for motor trucks and similar vehicles	0.10	0.05	....	....
608	Inner tubes and outer covers of rubber, with or without textile fabric, for vehicle wheels, and strips of rubber glued on cloth for repairing	0.40	0.20	0.05	0.18
	Rubber and the like:				
640	Thread	0.08	0.04	....	....
641	Tubes, even strengthened with threads or wire of any kind, fabrics or trimmings	0.06	0.03	....	....
642	Manufactures, not elsewhere specified	0.80	0.40	....	....
769	Buttons, not elsewhere specified	1.00	0.50	....	....
	Footwear (boots and shoes):				
770	Toys and games, except billiard tables and accessories therefor	0.80	0.40	....	....
775	Not elsewhere specified	0.50	0.25	....	....
777	Mats and matting of any substance	0.16	0.08	....	....

Rubber Solvents

By Ismar Ginsberg

RUBBER in all its forms finds many uses in the state of a solution. It is used to make cements, varnishes and different sorts of lacquers. The rubber is dissolved in a suitable solvent for this purpose and the solution is applied with a brush or otherwise. After the solvent has evaporated, a film of rubber remains. This film possesses many advantageous properties, such as a high degree of elasticity and resistance to water, which makes it decidedly useful for many purposes. Rubber solutions are also used in the impregnation of fabrics to make them waterproof. There is no doubt that the use of rubber in solution forms an important part of the rubber industry.

In making a solution of rubber there are two important factors to be considered. The first is the character of the rubber that is being dissolved and the second the character of the solvent that is employed to dissolve the rubber. The character of the solvent is perhaps the more important of the two. It must be remembered that rubber is a colloid. As soon as it is placed in a liquid, it tends to absorb the same and swell up. The degree of the swelling varies in accordance with the solvent used. With some it is very considerable and with others it is only slight. In the former case particularly, a part of the rubber dissolves, but complete solution is retarded because of the partly swelled up and insoluble rubber, with the result that considerable quantities of the solvents are required to obtain complete solution of the rubber.

Furthermore, rubber, it must be remembered, is decomposed by heating. In the use of rubber solutions, it is frequently necessary to use heat to drive off the solvent, and as a result of this treatment the rubber is often left behind in an altered condition. It is not the same rubber as was originally dissolved in the solvent. But it is also possible to properly select the solvents used in dissolving the rubber, so that the rubber is not changed in dissolving and so that it leaves a film of unaltered rubber. Rubber that contains moisture is difficult to dissolve and the best practice is to drive out the water entirely before dissolving the rubber. This can be done to best advantage by grinding up the rubber and then heating the finely ground mass to a temperature between 70 and 80 degrees C, until the rubber no longer loses weight.

Action of Various Solvents on Rubber

Water is of course not a solvent for rubber and its action on rubber in the cold is nil. In the hot condition it may have a certain effect on the rubber if the latter is kept in the hot water for a long time. Water is, however, perfectly miscible with rubber latex, which is an important property of the latex from a technical standpoint. Water will not penetrate through rubber under ordinary conditions.

Absolute alcohol does not dissolve rubber, but it is said to penetrate through the rubber structure. Ether dissolves about one per cent of rubber, and the non-dissolved rubber is made to swell up strongly. The cold drying oils, such as linseed oil and soya-bean oil do not dissolve rubber and in the hot they will dissolve considerable proportions as will certain non-drying oils as well. However, the rubber in solution undergoes some changes in properties. The fatty acids dissolve rubber, while petroleum, coal oil and certain essential oils, such as rosemary oil and lavender oil have but a slight solvent action on it. Here again the nature of the rubber is apparently changed in the solution state, as after the solvents have been evaporated, a thicky, smeary residue remains which does not possess the good mechanical properties of rubber.

During the dry distillation of rubber an oil is recovered, which is known as rubber oil. This oil will dissolve rubber rather readily. Tests have shown, however, that its solvent powers are not better than turpentine. The rubber oil is cheaper and possesses the additional advantage that the rubber dissolved in it does not lose any of its valuable properties that it possessed in the original state. It has been found that the addition of two to five per cent sulphur to the oil of turpentine gives a solvent which is just as good as rubber oil.

Both benzol and carbon disulphide are good rubber solvents. Benzol possesses the advantage over carbon disulphide in not being so inflammable and in not being as injurious to the health of the workers who are subjected to its fumes. Chloroform is also a good solvent.

Use of Carbon Disulphide

There is no question that from a technical standpoint carbon disulphide is perhaps the most advantageous rubber solvent, but its use entails a few disadvantages which must be guarded against. The rubber in a compound solvent, containing approximately 100 parts of carbon disulphide and six to eight parts of absolute alcohol, is unchanged in physical properties, and the solvent can be evaporated and the residual rubber is not any different from the original substance. However, carbon disulphide is a very inflammable liquid, probably more so than any other, as its boiling point is only 46 degrees C and its flashpoint 149 degrees C. Furthermore, just like all highly inflammable liquids, its vapors form explosive mixtures with air. Then again it is readily absorbed by such porous substances as wood and fabrics and it gradually turns them brown. Almost all metals are attacked by carbon disulphide, with the exception of copper, lead and zinc. Consequently it is not possible to use iron vessels in compounding rubber solutions in which carbon bisulphide is the solvent. It is claimed to form a complex compound with iron, which will ignite at the low temperature of 200 degrees C. The various piping, funnels and mixing apparatus, that come in contact with carbon disulphide, are therefore constructed of glass or earthenware, possessing a high glaze, and well-enamelled ware and copper, lead and zinc. It is important that there be no open flames in rooms in which carbon disulphide is used. Even safety lamps cannot be used in them. The best thing to do is to light these places by electricity. In the summertime the barrels and drums in which the liquid is stored should be kept out of the sun.

There has been some talk of the spontaneous combustibility of carbon disulphide, but it is hardly scientific to consider the apparently causeless combustion of the liquid which sometimes takes place in its storage from this standpoint. There is no doubt that such occurrences do take place without any visible cause. Just what happens is not perfectly understood and it may just as well be spontaneous combustion as something else that results in the self-firing of carbon disulphide. Whatever the cause of the fires or rather the explanation of the same, it behooves each and every rubber maker who uses carbon disulphide to take great care in handling and storing the liquid. It is bad practice to keep in the mixing room, where the carbon disulphide is used, any materials which possess the property of absorbing the liquid and then allowing it to evolve again in vapor form. Thus rags of all kinds, covers made of textile materials, wooden walls and floors or parts of the building should be avoided. It is also well to avoid iron.

Carbon Disulphide Fires

Carbon disulphide fires are very hot and very dangerous. In closed spaces the fire can extinguish itself for in burning carbon disulphide will form sulphur dioxide gas as well as carbon dioxide. These gases serve to choke the fire. The same thing can happen in carbon disulphide fires in vulcanizing apparatus. Water can be used to extinguish such fires provided it is used properly. Carbon disulphide is heavier than water and hence it is not well to sprinkle the water around the burning carbon disulphide as that tends to spread the fire further, The proper thing to do is to throw water on the fire and drown it. Vapors are also useful in fighting carbon disulphide fires. Carbon tetrachloride is very useful for this purpose. It is often possible to extinguish the fire in a large kettle within a few seconds by the use of this substance. However in using carbon tetrachloride the usual precautions must be taken as it will evolve asphyxiating fumes

which will quickly overcome the fire-fighters unless there is plenty of ventilation. It is not always advisable to use carbon tetrachloride for extinguishing a carbon disulphide fire and in fact any fire within a confined space where the ventilation is bad.

Various New Solvent Preparations

There are of course a great many different solvents that can be used in making rubber solutions, either alone or in admixture with other liquids. Many rubber solutions possess the disadvantages of catching fire easily, of containing solvents which have an anaesthetic action and consequently whose inhalation is injurious. Or else the rubber solution may possess the disadvantage of too high a specific gravity. It is claimed that these difficulties can be overcome by using symmetrical dichlor-ethylene as the rubber solvent. This liquid is a far better solvent for rubber than either chloroform or tetrachlorethane. It is a clear, colorless substance which boils at 50 degrees C. Rubber solutions made with it are homogeneous and free from all lumps. Because of its low boiling point it is more volatile than the general run of solvents used for dissolving rubber but it is not easily set on fire and it does not evolve explosive vapors. Furthermore, its specific gravity is low.

Ethylene dichloride is a liquid that possesses boiling point of 55 degrees C. It is claimed to be an excellent rubber solvent and its properties and behavior in dissolving rubber have been worked out in detail by the German electrical concern, Siemens and Halske. It is said that this solvent possesses the following advantages over other rubber solvents. Because due to its low boiling point it is more volatile than most of them. Even at the ordinary room temperature it has a strong solvent action on rubber. An important point is that by its aid rather concentrated solutions of rubber can be obtained which are moreover perfectly homogeneous. It is not inflammable and it evolves no explosive vapors. Its specific gravity is considerably less than the majority of solvents used for dissolving rubber.

In order to prepare a three per cent solution of Para rubber, about one hundred grams of finely cut rubber are added to 2.5 liters of the solvent. The mixture is agitated strongly until complete solution takes place. The solvent capacity of ethylene dichloride is such that 99.5 per cent of the rubber goes into solution, while under similar conditions tetrachlorethane will dissolve only 75.6 per cent of the rubber and chloroform only 74.9 per cent.

Vulcanized Rubber Solutions

Rubber solutions are made from vulcanized as well as crude rubber. The former solutions will leave behind just a very fine film of vulcanized rubber, due to the fact that vulcanized rubber is not so easily dissolved as crude rubber. However for certain purposes this fine rubber film provides sufficient protection. Solutions of vulcanized rubber are often very viscuous, but the viscosity can be removed in different ways. Thus the viscosity of a solution of vulcanized rubber, containing four grams of rubber to 100 grams of carbon tetrachloride, can be removed by the addition of a solution, containing 0.4 gram of iodine in 100 grams of carbon tetrachloride. In certain cases it is expedient to treat the rubber in small pieces first with carbon disulphide and then dissolve what remains in benzol. The two solutions can then be combined in one.

Rubber Lacquers

It is quite evident that each and every rubber solution is in reality a lacquer, that is, it can be used to cover objects with a fine film of rubber, just as an ordinary lacquer is employed to cover surfaces with a film of linseed oil and gum, which afterward oxidizes to a dry coating. Rubber is an extremely elastic substance and hence it possesses in the state of a thin film, adherent to the surface to which it was applied, a distinct advantage over the linseed oil film, which is far less elastic than the rubber film. A paint or lacquer film soon cracks, fissures form and both the appearance of the painted surface is spoiled and the protective effect of the paint film is destroyed. Rubber lacquer or varnish films do not behave in this manner.

The rubber solution, that is used as a lacquer, may contain rubber alone or else it may also contain gum lacquers or the gums used for making such lacquers. Thus for example a rubber lacquer containing copal gum lacquer as well will possess the good properties of both lacquers. However such lacquers will dry somewhat more slowly than the straight rubber lacquer. An example of such a lacquer is as follows: one kilogram of rubber, 8 kilograms of coal tar oil, 2 kilograms of copal lacquer, or 2 kilograms of rosin or dammar, one kilogram of rubber, which is dissolved with the former in 2 kilograms of linseed oil.

In using rubber lacquers, that is straight rubber lacquers, there has always been present one disadvantage, namely that rubber lacquers dry too rapidly, especially when they are prepared with carbon disulphide or benzol. The result is that it is hard to obtain a good, even coating with these lacquers. It is, furthermore, difficult to apply such lacquers and secure good results. The lacquers may be applied with a brush or the objects, for example those that are being transported across seas and must be protected from the salt water and air, are dipped directly into the lacquer.

Rubber in Artificial Leather Manufacture

Rubber lacquers may also be used for coating leather, artificial leather and textile fabrics. For this purpose the rubber lacquer must be as elastic as possible and only by the use of rubber in the lacquer can this property be attained in the proper degree. A very elastic rubber varnish can be made in the following manner. About one kilogram of rosin is melted down and heated quite strongly until the mass begins to evolve vapors. Then finely cut up pieces of rubber are gradually added to this hot, molten mass until 500 grams of the rubber have been added. Then while the mixture is being very vigorously stirred, until the mixture has become uniform, about one kilogram of linseed oil is added in small amounts. The mixture is heated some more until fumes are produced recognized by their disagreeable odor. The pot is then removed from the fire and then stirred until the entire mass has cooled off. The lacquers, that are made in this fashion, are particularly well-suited for coating leather and textile fabrics and such articles on which the coating must be able to withstand the effect of bending without the film cracking.

Another lacquer of this type can be made by dissolving 2 kilograms of rubber in one kilogram of naphtha, 2 kilograms of linseed oil and one kilogram of turpentine. Or else one kilogram of rubber can be made to swell up with 0.5 kilogram of ether and rendered liquid by heating. The mixture can then be mixed with one kilogram of warm linseed oil and one kilogram of warm turpentine. The mixture is then allowed to stand to become clear.

Metal Lacquers

Rubber lacquers are also used on metals and when employed for this purpose they are made a little differently. A lacquer of this type can be made from hard rubber refuse. The small pieces of hard rubber are put in an iron pot and melted with constant stirring. The liquid mass is allowed to flow out on an iron plate where it congeals in a brittle layer which can easily be broken up into small pieces. This black, highly lustrous pitchy substance is then treated with five to ten times its weight of rectified turpentine and the mixture is allowed to stand in suitable container for several weeks in a warm place. In the place of turpentine a mixture of equal parts of turpentine and benzol can be used. The time of solution is thereby reduced to a considerable extent. Then the supernatant liquor is carefully poured off and a dark brown lacquer is obtained, which can be used to very good advantage in coating metallic objects which are given a highly lustrous surface thereby.

Lacquers for Masonary

Rubber lacquers have not had much use as waterproofing for most masonry or brickwork but their possible application for this purpose is interesting. A lacquer that is suitable for waterproofing brickwork is made as follows. About 15 kilograms of caustic lime are slacked in 20 kilograms of water. This mixture is then added to a hot solution of 10 kilograms of rubber and 100 grams of carbolic acid (crude) and 50 kilograms of boiling linseed oil varnish. In case the mass is too thick and in order to be able to apply it in the hot condition, it is thinned down with turpentine.

Rubber Enamel Paints

These paints or enamels are used for painting rubber ar-

(Continued on Page 269)

Massachusetts as a Rubber State

The Bay State Leads in Production of Rubber Footwear — Produces Mechanical Goods and Tires Also

RAPID strides have been made by Massachusetts in the manufacture of rubber footwear, and today it heads all states as a rubber footwear manufacturing center. When rubber shoes became popular the industry gained a foothold in and about Boston. This was due to the fact that there were large shoe factories already in that territory. The rubber footwear industry has grown until at present over 50 per cent of the rubber footwear produced in the United States comes from the Bay State.

According to the United States Census of Manufacturers, 1921, Massachusetts is credited with 8 rubber boot and shoe plants employing 11,023 workers and producing a sales volume of $36,700,126. In addition 50 more factories, employing 5,944 workers, are turning out $28,786,812 worth of other rubber products exclusive of two plants devoted to tires and tubes.

1920 Statistics

More favorable statistics, however, were issued for 1920 by the Department of Labor and Industries of that state in their annual report for that year. In 1920 this department states that there were 8 factories with an invested capital of $42,396,532 turning out rubber footwear valued at $65,715,095 and employing on an average 14,883 workers. All told there were 49 other factories with an invested capital of $72,274,212, turning out $85,778,471 worth of rubber mechanical goods and tires, employing 8,130 workers.

Between the years of 1920 and 1921 there was a falling off in total business of $86,000,000. It is hardly probable that there was such a slowing up of that industry in that year in Massachusetts. That discrepancy is probably due to the difference in the character of the returns made to the state and Federal governments. There was, however, a falling off in business during the year 1920-21, but the large discrepancy in returns is not entirely due to a decided slowing up in activities of the Bay State's rubber plants.

Figures for 1922 and the first half of 1923 are not yet available, but from reports already published the rubber footwear factories are operating at capacity, and with an apparently good demand for tires and mechanical goods the total sales value of rubber products in Massachusetts for 1923 should touch the $175,000,000 mark.

In the June 11 issue of *Current Affairs*, the official publication of the Boston Chamber of Commerce, considerable space is devoted to the growth of the rubber industry in Massachusetts. The following is taken from that publication:

Rubber is Second

Next to boots and shoes rubber products of one form or another constitute the second largest industry of the Boston Metropolitan District. The annual production of merchandise made from rubber runs well toward $100,000,000. It exceeds that for such leaders in the industrial life of the Boston District as boot and shoe cut stock and findings, bread and bakery products, clothing for both men and women combined, confectionery, electrical machinery and apparatus, foundry and machine shop products, printing and publishing, and slaughtering.

This great industry around Boston took root for two reasons,—The raw product comes from abroad and the Yankee was the earliest foreign trader of the country. Again, we were the first to specialize in footwear and it was natural for Boston to think of manufacturing rubber boots and shoes as well as those made of leather. The industry grew up here as an ally of the boot and shoe industry to which alone it takes second rank. So far as rubber boots and shoes are concerned, Massachusetts has for years supplied a much larger proportion of the total for the country than of leather footwear. Almost half of all the rubber footwear made in the United States comes from the Bay State.

But our more energetic manufacturers have not been content to confine themselves to the production of rubber boots and shoes, and rubber heels and soles. Several of them have branched out and produced rubber belting, automobile tires and many other products that are turned out in an unending stream. So today, well toward 25,000 men and women are engaged in the great rubber plants centering around Boston. Each year a more active bid is being made by five or six of the companies for the automobile tire business, not only in New England but of the Eastern states in general. More

A Tribute to Boston —

Rubber Products

Rubber may fairly claim to be the true maiden of the arts and industries that make for 20th century luxuries and comforts. Whether it be in the field of clothing, electrical insulation, sporting goods, surgical supplies, automobile tires or plain boots and shoes, rubber has come to be an irreplacable essential. The jungles of the world have been combed to minister to the comfort and higher development of our economic and industrial life. From the beginning, New England firms have taken high rank in the scientific development of new uses of gutta percha. In other words, Boston is encircled by firms that have contributed to the wonder story of rubber and its uses.

It took a spirit of adventure for the early New England traders to go forth and get the product. Resourcefulness and originality from that day to this has been shown by our manufacturers in exploiting its use until today Boston is the centre of a $100,000,000 rubber goods industry. Firms in this line have grown faster than the proverbial mushroom and secured, unlike the mushroom, a sound development in which we in New England can well take pride. Nowhere can we look for longer technical experience in the manufacture of rubber goods. No other section can lay as strong a claim to the trade of New England and only the united support of New England is necessary to insure a still faster and sounder development in this field.

In no other section can a wider variety of merchandise made from rubber be secured from firms which call Boston their home.

—From *Current Affairs*, Boston June 11, 1923. A statement in paid space by a believer in the rubber goods industry in New England.

than this, it is a line in which most of the active companies are distinctly New England concerns rather than branches of nation-wide manufacturing organizations.

The manufacture of rubber began in New England generations ago, in some cases in simple tide power plants. It is a line in which we have had long and successful experience. Since the basic material has to be brought from abroad, we do not stand at any material disadvantage in production cost up to the time when the merchandise is ready for shipment. Much of the cotton used for automobile tires as well as the rubber comes from overseas or at least can be delivered in the North more cheaply by water than by rail. Whatever the reasons may be, and they are rather obvious, for the growth of the automobile industry in the West, nearer the steel and coal mines, New England can look forward to an even fighting chance for a healthy share of the growing automobile tire business. Of late, quite a definite bid has been made from several different angles by the New England companies for the home business of New England. With great and growing companies which, in emergency, can deliver to a very heavy proportion of the New England business by auto truck, there is good reason for giving to the New England firms such a volume of business here at home as to build up for them an even stronger position from which to compete for business west of the Hudson.

The fact that one company alone in but a few years, practically within the memory of every adult person in Boston, has grown from negligible beginnings to a firm employing 10,000 hands is evidence that the economic conditions for the industry are such as to make it strictly within bounds to look for a continuing and substantial development in a line in which we have long shown a strong aptitude.

British Auto Topping Fabrics Used in Canada

Large quantities of twill rubber-proofed fabrics made by British manufacturers in Manchester or elsewhere are shipped to Canada, whence they later return as the hoods or tops with the complete automobile (General Motors Co.) from Canada. The only imported auto top fabrics in this market come from America. Popular British products are the "Rexine" brand of leather cloths, and the "Pluviusin", made by a Manchester concern reported to have an agreement with a certain well known American manufacturer to the effect that the latter concern is not to sell its imitation leather cloths in Great Britain.

Messrs G. O. James & Co. stated that they import some motor cloth and auto top fabrics direct from the United States c.i.f. Liverpool; terms 3 per cent cash with bill of lading or on verification of goods, net in 60 days; invoice discount 20 per cent. Some British manufacturers give them 3¾ per cent cash discount.

The wholesale prices of representative qualities of auto topping fabrics in Leeds are about as follows:

Imitation Leather

QUALITY	WIDTH	PER YARD. s. d.
L. 1	48/50	12/2
L. 34.E.	48/50	10/3
P. 21	48/50	4/6
D. R. 23	48/50	12/3
Karhyde	48/50	9/–
V. C. 2	48/50	14/3

Two color effects, 3d per yard extra; supplied in rolls of 12 yards. Cuts 6d per yard extra. Quality DD23 supplied only in minimum lengths of 36 yards. All goods carriage paid.

Rubber Cloth "Motorex"

WIDTH	COLOR AND GRAIN	PER YARD. s. d.
No. 1.....50 inch	Black	7/9
2.....54 inch	Bright cross	10/6
3.....54 inch	Bright cross	12/–
4.....54 inch	Dull, straight	10/6
5.....54 inch	Dull, super whipcord back	14/6
6.....54 inch	Bright do. do	14/6
7.....54 inch	Dull, stout whipcord back	12/6
8.....54 inch	Bright do. do	12/6

Twill Rubber Proofed—12 Yard roll

WIDTH		PER YARD. s. d.
No. 1.....72 inch	Brown twill	6/6
2.....72 inch	Black twill	6/6
3.....72 inch	Grey Duck	8/–

The prices of retail dealers are about double the above.

Prices of twill hoodings (91895A) in Leeds were obtained indirectly from G. O. James & Co. as follows: Special twill hoodings, 72 inches wide, khaki gray, blue or black 6/6 per yard; heavy duck hoodings, 72 inches wide, khaki gray, blue or black (91895B) 6/6 per yard; heavy duck hoodings, 72 inches wide khaki, black, gray, blue-gray, and fawn 7/9 per yard. These prices are quoted carriage paid for rolls of 50 yards. "Motorex" rubber cloth hoodings (91895C) range in price from 6/0 to 8/11.

Rubber Rugs Popular For Summer Use

The B. F. Goodrich Company reports that the sales of their new rubber rag rugs have been more than satisfactory. While the rug has only been on the market for about three months sales have exceeded the company's expectations. It is said

Rag Rug Used in Bathroom

that the company cannot fill all orders at present, the demand being greater than plant capacity.

The rugs have become very popular with folks having summer cottages at the sea-shore. Tire dealers in those localities as well as accessory men are now carrying these rugs as a side line. The rug in sea-shore cottages is used extensively as a porch mat. In suburban towns these rugs are likewise in demand, being used mostly on porches, in the kitchen and in bathrooms.

One of the reasons given for the rug's popularity is the fact that it can be easily cleaned with water. This characteristic has created the demand for it in sea-shore cottage and in summer resorts. The rug's blue and white design is also in keeping with the summer season, and that has been one of its selling features retailers say.

Rubber in Beauty Parlors

Over 15,000 Beauty Culturists in this Country Offer a Large Market for Rubber Goods

By L. W. Alwyn-Schmidt

ONE of the lines of business that uses rubber in various forms is the beauty parlor. Especially during the past decade has this industry developed in leaps and bounds. Today almost every lady pays an occasional visit to her favorite beauty parlor.

Rubber goods are used in many forms in such establishments. First of all there is the rubberized apron. This apron is used because it thoroughly protects both the customer and operator from chemicals used in hairdyeing. Until recently the cotton apron was extensively used. But the newer rubber garment has supplanted its cotton rival, although the pattern is practically the same. The apron slips on over the shoulders and protects milady's waist as well as her skirt. The operator also wears a similar apron of rubber.

During the hairdyeing process the operator wears rubber gloves. These gloves do not need to be quite as fine in quality as are surgical gloves but a slightly better glove than the ordinary household glove is used. These gloves are also worn by the operators when sterilizing instruments.

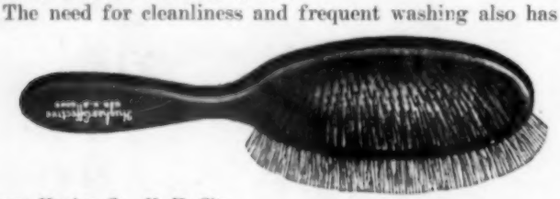
Absolute Cleanliness Required

Sterilization plays an important part in the business of a modern beauty parlor. Health authorities are strict in imposing sanitary rules upon these establishments, and consequently strong solutions of formaldehyde and other sterilizing fluids are in use. Many of these attack rubber goods and cause rapid deterioration of all those articles frequently sterilized.

Rubber Cushioned Brushes

As the wooden backs of the brushes are very sensitive to sterilizing fluids, it has become necessary to remove the bristle part from the brushes during sterilization. This has led to the introduction of two part brushes and the rubber cushion brush is now made almost exclusively in two parts. The rubber air cushion in which the bristles of the brush are fastened, can be separated from the back and handle of the brush and can be sterilizer separately. Their use is not confined to the beauty parlor, but large quantities are also sold in stores carrying toilet goods. The rubber cushion brush looks like an ordinary brush. The bristle part of the brush, however, consists of an oval rubber pad or cushion which is fitted in the back of the brush. Such a brush has the advantage that it allows a softer stroking of the scalp of the customer and also can be cleaned more easily than the old fashioned bristle brush. The rubber cushion as a rule is oblong in form but circular brushes are also in use.

The need for cleanliness and frequent washing also has led



Henry Hughes Co., N. Y. City

RUBBER BRUSH

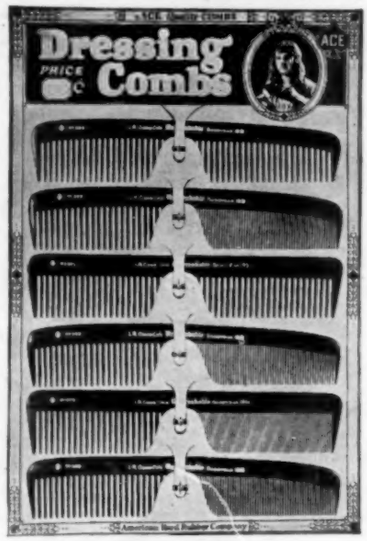
to the use of brushes having the bristles firmly embedded into a rubber back. These brushes are used principally for manicuring purposes, but they are also used for skin scraping purposes. A special soft bristle is employed in making this type of brush.

All Rubber Brushes

Another brush employed in beauty stores is the all rubber brush. This is a brush where both the back and the bristle part are constructed of rubber. The bristles are, in this case, not as thin as the ordinary bristles. It is claimed for these brushes that they can give more energetic massage of the scalp than the ordinary bristle brush. An added advantage is that moisture will cause little deterioration.

Rubber Hose

Rubber sprays are in demand and rubber hose is used in making plumbing connections for shampooing and similar



RUBBER DRESSING COMBS

operations. The tendency is to use rubber wherever possible as it is softer, more pliable and durable than many other materials.

Vibrator Applicators

Beauty culturists have discontinued the use of hard material vibrator tops. A modern vibrator outfit contains a number of applicators. To select a few, there is the surface flat applicator, consisting of a small circular disk; the cup and the vibrator brush, and there is another type consisting of a rubber sponge which is fitted to the vibrator. Some difficulty has been experienced regarding the employment of vibrators within the city limits of New York. The Board of Health of that city maintains that vibrator tops can not be sufficiently sterilized and consequently has ordered their use discontinued. Another method, however, has been adopted and consists of placing a little cover over the rubber part of the vibrator which gives the required protection. New York, although having well over 1000 beauty culturists, does not however control the beauty culture industry of this country. The vibrator tops must be of good quality so that they can be easily cleaned.

A specialty in the field of rubber goods employed in beauty culture establishments is a large suction-cup which is used for reducing purposes. Large quantities of these cups are sold under special trade names.

Rubber Sponges

Rubber sponges are of course in wide use and are actually driving the natural sponge from the market. The reason is that the rubber sponge is easier to sterilize and also gives better service.

The reducing specialists are making use of rubber masks and rubber bandages. In this form of application rubber is used because of its elastic properties. Rubber chin straps are in demand by people who have double chins. Face masks are used by some specialists to take out wrinkles of the face. The use of rubber bandages for reducing ungainly accumulations of fat at the ankles and other places where fat has to be removed is not a novelty.

Finally hard rubber combs are used extensively. For beauty culture purposes or more strictly speaking for hairdressing purposes, two kinds of combs are employed. One is the so called shampoo comb and the other is the marcel comb, their uses being explained by their names. There are of course certain variations such as tail combs and others.

Few people realize the scope of this phase of the rubber industry. At present there are listed in this country approximately 15,000 hairdressers and beauty culturists. Retail firms are served by wholesalers. The principal wholesale houses are in New York, Boston and Chicago, with Chicago as the western center. But the business has grown to such an extent during the recent years that manufacturers have found it advisable, in a number of cases, to dispense with the aid of the wholesale house and have started to work this very large market through direct representation.

Four trade papers with an estimated total circulation of 18,000 copies serve the profession, and there is a Year Book with a circulation of 12,000 copies. Not all articles mentioned here are sold by hairdressing and beauty culture stores exclusively. The beauty culture business has outgrown the boundaries of one or the other retail branch and the result has been that many other retail branches have taken up the sale of beauty culture appliances. Mention need hardly be made of many rubber articles which are sold by druggists and department stores. The drug store, in addition, is also a good distributor for rubber masks and bandages, vibrator cups and similar appliances. Department stores handle nationally advertised beauty culture appliances and even the hospital outfitters have entered this very profitable business.

Now comes the newest development with beauty culture claiming semi-medical honors by the entrance of the cosmetologist into professional life. The cosmetologist is a specially trained beauty specialist who has to undergo a separate examination in those states that recognize this new profession.

The earnings of this industry are large and price does not seem to enter the sales possibilities with the exception of such standardized articles as combs, gloves, sponges, etc. Rubber manufacturers in search of new outlets will do well to keep an eye on the beauty culturist.

Rubber Solvents

(Continued from Page 265)

ticles. The para rubber is well mixed with the pigment colors and then the rubber mixture is rolled out in thin sheets. These sheets are cut up and dissolved in benzine. Complete solution does not take place and after a little standing a sediment appears at the bottom of the container holding the solution. The colored solution is then carefully poured off so as not to disturb the sediment. The rubber article is dipped into the colored lacquer or else the latter is painted over the surface with a brush or sprayed on. The rubber article is then vulcanized and when finished it has a colored, highly lustrous, hard and durable surface. The colors that are used in the preparation of rubber enamels are of the same kind that are used in coloring rubber in the mass. The principal colors used are the red, green, black, blue, yellow and white pigments.

Antimony pentasulphide is employed as the red pigment. It must not contain free sulphur. Cinnabar may also be used. Chrome green is a good green pigment and lampblack is most suitable for making black enamels. Ultramarine is used as the blue pigment, cadmium yellow as the yellow pigment and zinc white or lithopone as the white pigment. All sorts of intermediate shades and tints can be obtained by mixing various proportions of these colors. The color must be carefully sieved and then thoroughly ground between color grinding stones before they can be used for mixing with the rubber. Sufficient of the color is used to produce a fully colored coating on the enamelled article. Precipitating reagent need not be added and only non-poisonous colors must be used for this purpose.

Rhus Rubber Lacquer

The preparation of this rubber lacquer is carried out in a vessel whose inner sides are smeared with oil. The first step is to melt together rubber or gutta-percha of the highest quality with from 2.5 to ten times its weight of sulphur and a little magnesia. The temperature is kept moderate. The melt is then allowed to cool off a little and then the sap of the rhus vernicifera plant is added. The proportion of the sap used varies in accordance with the properties that the finished lacquer is supposed to have and the uses to which it is to be put. The sap combines slowly with the molten mass in the kettle, and in accordance with the quantity of the sap added, the lacquer dries quickly or slowly but always in moist air. The lacquers may be colored by the addition of various mineral colors, such as cinnabar, orpiment and the like. The lacquer is used in the ordinary manner, and gives films of high luster and particularly great elasticity. The lacquer dries well which is a property that rubber solutions generally do not possess.

Tetralin as a Rubber Solvent

A discussion of rubber solvents would not be complete without taking into consideration the comparatively new solvent tetralin. Tetralin is a product obtained by the hydrogenation of naphthalene and its complete scientific name is tetrahydronapthalene. It was manufactured in Germany during the war and since then it has attained considerable importance in the solvent field. It is manufactured in Germany at the present time on a fairly large scale.

Tetralin is a clear, water-white liquid which has a pleasant odor, and which has no physiological effect on the human organism. Tetralin is an all-around solvent, possessing the power of dissolving all sorts of resins, waxes, oils and fats. It can be mixed with other solvents such as turpentine, pine oil, coal tar distillates, petroleum distillates, amyl acetate, etc.

Tetralin has a high boiling point, about 206 degrees C, and this property makes it very useful for manufacturing lacquers and varnishes, especially when it is necessary to melt the ingredients before adding them to the solvent. The addition of the ingredients at a comparatively high temperature makes it possible to obtain a perfectly uniform lacquer, in which there is separation or deposit of the gums or rubber that is used in its preparation. Furthermore, tetralin is non-inflammable, which is also an important property and gives it a distinct advantage over the solvents generally used in dissolving rubber, which are all more or less inflammable and some to be sure are even explosively inflammable.

Rubber lacquers can be made with tetralin in various ways. For example, such a lacquer may contain one kilogram of rubber, two kilograms of copal, four kilograms of coal tar oil and four kilograms of tetralin. Another may be made from two kilograms of rubber, dissolved in two kilograms of tetralin and mixed with two kilograms of linseed oil. Still another is compounded from rosin and rubber, containing two kilograms of rosin in which there is dissolved one kilogram of rubber, the entire mass being mixed with one kilogram of linseed oil and one kilogram of tetralin.

The use of tetralin in the place of turpentine in rubber lacquers has given entirely satisfactory results. The films are smooth and even and of the proper hardness. The rubber lacquers, made with tetralin, which has a greater solvent power than turpentine, evaporate less rapidly, but this does not give rise to any bad effects, but in fact constitutes an advantage from certain standpoints.

Note—One of the sources used in compiling this information is a recent article in the German Journal, *Kunstoffe*.

Review of Foreign Tire Markets

Reports from all Parts of World Indicate Possibilities for American Made Tires

AUSTRIA

Assistant Trade Commissioner F. W. Alport, Vienna

Automobile tires and rubber overshoes comprise the greater part of American rubber products finding a market in Austria. The three tires produced locally, Semperit, Reithofer, and Harburg-Wien, are considered to rank in the order named in quality. The French Michelin leads in the imported tires, while the German Continental, selling in pounds sterling, has little if any price advantage over other imported tires. American rubber overshoes find a favorable market here, being considered superior to those produced in Austria, Germany and France. A favorable opportunity for the American product will probably continue so long as the Russian product is out of the market. Import permits are required for both tires and overshoes. For tires and tubes they may be obtained without difficulty, but they are not so easily obtained for overshoes. Shipping conditions are favorable; four to five weeks are required for the importation of American rubber products.

Most of the tires sold in Vienna are Michelins, which are selling at the rate of 10,000 to 12,000 per year. French Goodrich tires are selling at the rate of 5,000 to 6,000 per year. American tires are higher priced and are sold in much smaller quantities. Dunlop tires are not in the market. Only cord tires are in demand.

BRITISH GUIANA

The Canadian Goodyear and Dominion tires and four American makes are sold here. Sales of American made tires are falling off and sales of Candian tires are increasing because of the preferential customs duty accorded to British Empire products. The present general tariff on tires is 33 1/3 per cent ad valorem, and the preferential rate is only 16 2/3 per cent ad valorem. (Consul Chester W. Davis, Georgetown.)

COLOMBIA

About 1400 tires are sold annually in Cali and Buenaventura. Practically all of these tires are American makes. The German Continental has practically no sale. The Continental agents are Borne and Barth, of Cali. (Vice Consul Thomas McEnelly, Buenaventura.)

CUBA

Referring to Special Circular No. 166 "Retail Tire Prices in Cuba"—issued by the Rubber Division April 26, 1923, Vice Consul Wm. A. Smale reports that the local Michelin agent at Matanzas states that the prices headed "List Prices to General Public" represents the prices broadcasted to the public, while the prices headed "Price List to Established Customers" represents the prices actually charged the consumer. It is said that no discrimination in prices is made between new and old customers, all receiving a ten per cent plus 10 per cent discount. Apparently the Michelin firm prefers to list high prices and allow high rebates rather than to list low net prices.

ENGLAND

"Michelin tires lead in sales here because they are of a standard quality, although an American tire was the best seller a year ago, (but has lost ground because the manufacturers placed on the market at reduced prices a tire branded "C'earance"). In order to meet competition American firms have put several qualities of tires on the market, but Michelin has continued to offer one standard quality. The public buying here is based on the name of the tire and where a dealer sells a cheaper quality and the tire does not give satisfactory service, the public condemns without consideration, all tires made by that particular manufacturer. The leading dealers prefer a one-quality tire, and that reason favor the Michelin." This report from Consul William J. Grace, Sheffield, England, April 24 is one of the first to state the effect of marketing several different qualities of tires abroad. Too much emphasis cannot be given to the fact that "the name sells the tire" generally in Europe. This matter is worth particular consideration in these times of double lines of cord tires. It is certain that the Michelin policy would tend to reduce manufacturing costs materially.

ITALY

American tires are liked in Leghorn, but owing to the depreciation of Italian currency (21 lire to the dollar) the locally manufactured Pirelli, Michelin, and Salga tires get most of the business. There are no direct tire importers at Leghorn, dealers receiving stocks of American tires from distributors in Northern Italy. There are only 200 passenger cars, 10 motor busses and 200 motor trucks in Leghorn at present. The number of automobiles in use in other towns in the district is very much less. (Vice Consul Franklin C. Gowen, Leghorn.)

FRANCE

In France, Michelin gives a basic trade discount of 10 per cent to retailers and assumes the additional 1.1 per cent business turnover tax. An additional discount varying from 5 per cent to 10 per cent is granted to retailers whose business reaches a certain volume, the 10 per cent discount applying where the volume of annual business reaches 50,000 francs. The retail price of a 30 x 3 cord is 136 francs, and of a 30 x 3½ cord, 179 francs. The wholesale price to retailers securing the 10 per cent rebate is about 108.8 francs for the 30 x 3 size and about 143.2 for the 30 x 3½ size.

FRENCH MOROCCO

Nominally the tire market in French Morocco is one to which manufactures from all countries, including France, are admitted under equal customs rates of 12½ per cent ad valorem; in fact, however, the French manufacturers enjoy a very considerable advantage over their competitors, in that goods entering Morocco from Algeria by land through Oudja pay only 5 per cent, instead of 12½ per cent. The practical result is that the French can ship in from any stock they may have in Algeria, paying 5 per cent duty, while tires from other countries if they are to profit from this duty, must be kept in bond at some port such as Oran, in Algeria, and then sent from bond through to Morocco. All stocks which other than French companies have in Algeria, except those held in bond, will of course, already have paid the Algerian duty which is the same duty as applies to imports into France itself. (Commercial Attache Chester Lloyd Jones.)

FRENCH WEST INDIES

Tire merchants hesitate to order supplies because of the high exchange rate. Michelin and Bergougnan occupy third and fifth positions, respectively, in the tire market here. Michelin prices for representative sizes of cord tires are as follows: 815 x 105, 200 francs; 30 x 3½, 175 francs; 32 x 4 straight side, 400 francs. (Consul Thomas R. Wallace, Fort de France, Martinique.)

NEW ZEALAND

At present there are about 10,000 automobiles in the city of Auckland alone, and therefore there is a good market for tires and accessories. American manufacturers are well represented here, and American products are largely used in connection with the automobile trade. (Consul K. de G. [illegible]ae Vitty, Auckland.

PERU

[illegible]early all tires used here are of American manufacture, [illegible] chief competition being, from the Michelin. American [illegible]casings are lower priced than Michelin, but Michelin

*Compiled from information supplied by Rubber Section of Department of Co[illegible]

inner tubes sell slightly below American makes. Prices for standard sizes are as follows:

Cord size	American Makes		Michelin	
	Casings	Tubes	Casings	Tubes
30 x 3½	Lp. 5-0-00	1-0-00	5-5-00	0-9-00
32 x 4½	13-0-00	1-8-00	14-5-00	1-6-00
34 x 4½	14-0-00	1-9-00	15-0-00	1-8-00
35 x 5	18-5-00	2-4-00	20-0-00	2-2-00

The sale of the British Dunlop is very small. The German Continental has proven to be a total failure in the market. (Acting Commercial Attache W. E. Dunn, Lima.)

ROUMANIA

In Constantza, Roumania, there are two regular tire stores, branches of Bucharest firms. Besides these there are several small dealers who collect odd orders for tires which they supply by going to Bucharest where they purchase to their best advantage. Michelin and Pirelli tires are the best sellers at present. Tire prices depend on exchange rates and upon the financial standing of the inquirer in this district. Five American tires are occasionally used on cars here. (Vice Consul Richard B. Haven, Constantza.)

Tires sold in Roumania include Michelin, Continental, French Goodrich, Pirelli, and French Dunlop. The first two supply at least 80 per cent of the tire market. Prices in lei for Michelin cords are: 760 x 90, 2,695; 815 x 105, 3,485; 820 x 120, 4,620; 30 x 3½, 2,795; 32 x 4 straightsides, 4,070; 33 x 4, 4,180; 32 x 4½, 5,590. At present exchange rates 210 lei equal one dollar. These prices are inclusive of the 10 per cent luxury tax, and are based on February price lists which are still in effect. Retailers grant discounts up to 10 per cent very freely. Transportation charges on tires imported from the United States are a handicap to American shippers to this market. (Consul Ely E. Palmer, Bucharest.)

SOUTH AFRICA

(Consul Charles J. Pisar, Capetown)

American and English tire manufacturers generally are maintaining a differential of about 10 per cent between their prices and Michelin, although some firms have met the Michelin price cuts. It is anticipated that all prices will be increased in the near future as a result of the change in levying the customs duty. Under the new method the duty will be greatly increased; the former average duty per tire was 8 shillings, and under the new rating it is about 14 shillings. Stocks of tires are large and there has been a constant introduction of new makes selling at competitive prices. Of the eight leading makes of tires in this city, five are American makes, as compared with four last September. These makes hold second, fourth, fifth, sixth, and seventh positions. Of six other brands on the market, three are American, as compared with three brands (one American) last September. The Dunlop is the best selling tire, and Michelin now holds third place.

Tariff Favors British Tires

The new customs tariff on tires, which came into effect March 26, favors imports from the United Kingdom. Casings are now assessed on weight at one shilling per pound with a rebate of 3d. per pound on British goods. This makes a preferential of 25 per cent in favor of manufacturers in Great Britain, whereas, under the former duty of 20 per cent ad valorem with a rebate of 3 per cent on British goods, the preferential was only 15 per cent. The preferential on inner tubes for automobiles and for bicycle tires and tubes is likewise 25 per cent, while that on solid tires is now 33⅓ per cent as compared with 15 per cent before the change. (Consul G. K. Donald, Johannesburg.)

Consul Charles J. Pisar, Capetown, reports that it is anticipated that all prices will be increased in the near future as a result of the change in levying the customs duty. The former average duty per tire was 8 shillings, and under the new rating it is about 14 shillings. Stocks of tires are large and there has been a constant introduction of new makes selling at competitive prices. Of the eight leading makes of tires in Capetown, five are American makes, as compared with four last September. These makes hold second, fourth, fifth, sixth, and seventh positions. Of six other brands on the market, three are American, as compared with three brands (one American) last September. The Dunlop is the best selling tire, and Michelin now holds third place.

There is a unanimous desire, both on the part of tire firms and motor traders, to get the tire placed on a satisfactory basis, Consul Donald states, and as the clearance stocks of fabric tires accumulated in 1920 and 1921 are largely liquidated, it should be possible to put into effect regulations that will secure for the dealers legitimate profits on tires. Suggestions to this end will be taken up by the Motor Traders' Association during 1923.

SWITZERLAND

(Consul Lewis W. Haskell, Geneva)

The market in Geneva and the surrounding territory, comprising the French-speaking part of Switzerland, is served by branch houses or general agencies of several of the largest European and American tire manufacturers. The Michelin is far in the lead in sales and is followed by the Continental, French Goodrich, Bergougnan, Englebert, Pirelli, and Palmer in the order of importance. These makes are well established and, with a sales organization which gives them a house or an agency devoted exclusively to their interests, they naturally have some advantage over an exporter who counts upon selling through general importing houses or directly to retail dealers. There is very little direct business done since there are no large automobile supply jobbers and the orders from garages and tire dealers are too small to warrant buying individually from the United States.

Size of the Market

All tires used in Switzerland are imported, but as custom statistics do not segregate completely the various classes of rubber goods, exact quantities cannot be determined. The size of the market in the country can best be estimated from the number of motor vehicles in use. According to a leading automobile journal, the figures on December 31, 1922 were: 17,723 passenger cars; 5,202 industrial trucks; 9,630 motorcycles.

Some Objections to Handling American Tires

Some of the difficulties which a local dealer sees to handling American tires, especially of a make not already known in Switzerland, may be summed up as follows: (1) He lacks the advertising and guarantee possibilities which branch houses and general agents of strong competitors possess, because he does not have the manufacturer directly back of him. (2) To carry on a first-class business he must carry a fair stock of tires of all sizes, but if he fails to dispose of this stock within a year and a half or two years he finds its value impared without his having any way of protecting himself. It is understood that the Michelin company does not allow its local house to keep any old stock on hand; if tires are unsold for a certain length of time they are sent back to the factory and replaced by fresh ones. (3) Market prices are set by the large companies, which meet each other's competition. If a small dealer handling a new line has to meet price cuts of agents of competing makes he loses money; if he fails to do this he loses business. These are some of the reasons why retail tire dealers prefer to handle the makes of tires which they can get in small quantities from general depots or agencies of established makes rather than to risk introducing a new line, even though the prices of the latter may offer some attraction.

Exclusive Agency Best Method of Entering Market

The natural conclusion is that competition against the companies already in the field could best be conducted through an exclusive agency which could push the line of tires handled by active advertising and with full backing from the manufacturers. The general agents and branch houses sell to retail dealers on a 10 per cent discount basis, and additional discount being sometimes allowed in case yearly purchases reach a certain figure. Several of the houses do not engage in retail business at all; others sell directly to the public as well as to tire dealers. Retailers themselves occasionally allow a small discount from the list price to their customers.

The customs duty is an inconsiderable factor in figuring the cost of delivering American tires in Switzerland. The rate on solid tires according to item 521 of the present tariff, is 10 francs per quintal, equivalent to about $0.85 per 100 pounds of the current rate of exchange. The rate on pneumatic tires (item 522) and tubes is 20 francs per quintal.

STATISTICS

IMPORT **PRODUCTION** **EXPORT**

Crude Rubber Imports

Importations of Crude Rubber into the United States During May, 1923

Figures compiled and distributed by The Rubber Association of America, Inc.

(Estimated net weights—long tons.)

PLANTATIONS

FROM	TONS
Batavia	1,720
Bremen	23
Belawan-Deli	1,883
Colombo	3,595
Glasgow	56
Hamburg	112
Japan and Others	161
Liverpool	501
London	8,244
Malacca	1,371
Manchester	7
Penang	3,149
Pt. Swettenham	1,242
Rotterdam	212
Singapore	11,428
Sourabaya	905
	34,609

MANICOBA & MATTO GROSSO

Manicoba	3½
Matto Grosso	6
	9½

AFRICANS

FROM	TONS
Antwerp	76
Bordeaux	61
Hamburg	1
Havre	43
Liverpool	150
Southampton	2
	333

CENTRALS AND GUAYULE

Centrals (Mexico and Central America)	24
Guayule (Mexico)	167
	191

PARAS

Bahia	10
Iquitos	16
Manoas	583
Para	433
	1,042

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

Waste	361 Tons		
Balata	55 Tons	Miscellaneous Gums	463 Tons

Comparison 1922—1923

	MAY-1922	MAY-1923	Total Importations 5 months ending, May 31st. 1922	1923
Plantations	19,485	34,609	109,150	147,373
Paras	1,072	1,042	4,248	6,856
Africans	3	333	796	2,331
Central	—	24	35	227
Guayule	62	167	281	309
Manicoba and Matto Grosso	—	9½	98	9½
	20,622	36,184½	114,608	157,105½

ARRIVALS PLANTATIONS FOR MAY, 1923

FROM	ARRIVED AT	TONS
Batavia	New York	1,720
Belawan-Deli	Boston	5
Belawan-Deli	New York	1,878
Bremen	New York	23
Colombo	Boston	74
Colombo	New York	3,521
Glasgow	New York	56
Hamburg	New York	112
Japan and Others	New York	161
Liverpool	Boston	22
Liverpool	New York	479
London	Boston	100
London	New York	8,144
Malacca	New York	1,371
Manchester	New York	7
Penang	Baltimore	72
Penang	Boston	32
Penang	New York	3,025
Penang	San Francisco	20
Port Swettenham	Boston	155
Port Swettenham	New York	1,087
Rotterdam	New York	212
Singapore	Baltimore	597
Singapore	Boston	211
Singapore	Los Angeles	20
Singapore	New York	10,587
Singapore	San Francisco	13
Sourabaya	New York	905
		34,609

ARRIVALS OF PLANTATIONS BY PORTS

Atlantic Ports		
New York	33,288	
Baltimore	669	
Boston	599	
		34,556
Pacific Ports		
San Francisco	33	
Los Angeles	20	
		53
		34,609

Solid Tire Exports

Domestic Exports of Solid Tires from the United States by Countries, for April, 1923

Countries	Number	Dollars
Austria	12	480
Denmark	16	539
Greece	18	582
Latvia	276	9,907
Netherlands	28	1,023
Norway	231	8,406
Spain	141	4,152
Sweden	22	1,067
England	1,469	37,016
Scotland	48	899
Canada-Quebec & Ontario	479	21,087
Prairie Provinces	12	513
Brit. Col. & Yukon	17	859
Guatemala	4	202
Honduras	5	258
Nicaragua	24	422
Panama	100	1,145
Salvador	28	975
Mexico	25	1,452
Jamaica	44	828
Trinidad and Tobago	26	462
Cuba	586	15,614
Dominican Republic	44	1,086
French West Indies	6	174
Argentina	139	4,242
Brazil	150	3,966
Chile	6	173
Colombia	71	2,176
Ecuador	6	201
Peru	32	1,091
Uruguay	10	154
Venezuela	4	46
British India	97	2,696
Ceylon	32	1,298
Straits Settlements	125	2,403
China	2	60
Java and Madura	320	7,550
Other Dutch East Indies	4	96
Japan	1,264	10,912
Philippine Islands	346	6,633
Australia	731	17,063
British Oceania	1	17
French Oceania	2	42
New Zealand	385	12,017
British South Africa	49	1,196
Canary Islands	63	1,240
Egypt	20	506
Total	7,520	184,926

Domestic Exports of Rubber, Reclaimed, Scrap and Old, from the United States, May, 1923

COUNTRIES	RECLAIMED Pounds	RECLAIMED Dollars	SCRAP AND OLD Pounds	SCRAP AND OLD Dollars
Belgium	....	....	50,340	2,869
France	....	....	150,379	14,813
Germany	....	....	305,695	8,908
Italy	....	....	7,635	452
Spain	....	....	337,511	21,198
Sweden	....	....	27,581	2,759
England	41,667	4,532	30,902	2,575
Scotland	2,000	225	128,063	6,084
Quebec and Ontario	499,876	60,786	266,334	7,620
Japan	4,518	410	187,515	3,011
Total	548,061	65,953	1,491,955	70,289

Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories During the Month of May, 1923

		ALASKA Quantity	ALASKA Dollars	HAWAII Quantity	HAWAII Dollars	PORTO RICO Quantity	PORTO RICO Dollars
Boots and Shoes	(Pairs)	10,625	25,654	9,727	11,724	58,006	37,641
Druggists rubber sundries	(Pounds)	1,424	624	2,104	1,900	3,421	2,291
Automobile tires	(Number)	164	1,756	4,889	55,922	11,376	87,748
Other tires	(Number)	2	5	325	498	736	1,489
Belting, hose and packing	(Pounds)	24,130	10,043	19,592	9,653	10,008	3,877
Other rubber manufactures	(Pounds)	1,883	946	14,581	10,207	22,902	9,472
Coated and waterproofed goods	(Pounds)	15,522	9,599	5,221	2,779	4,787	3,494

Summary of Rubber Exports for May, 1923

Compiled by the Department of Commerce

PNEUMATIC CASINGS AND SOLID TIRES.

	Pneumatic Casings				Solid Tires			
	For automobiles		Other		Automobiles		Other	
	Number	Dollars	Number	Dollars	Number	Dollars	Pounds	Dollars
Total	134,667	1,474,989	7,998	34,601	7,023	178,823	45,179	11,494

RUBBER FOOTWEAR AND SOLES AND HEELS.

	Boots		Shoes		Canvas shoes with rubber soles		Rubber soles and heels	
	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pounds	Dollars
Total	17,377	46,833	38,038	33,704	368,439	286,738	154,631	53,156

HARD RUBBER GOODS AND DRUGGISTS' RUBBER SUNDRIES.

	Druggists' Rubber Sundries		Battery jars and Accessories		Other Electrical Supplies		Other hard rubber goods	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Total	55,988	61,131	47,350	10,545	10,143	5,824	76,282	53,985

PNEUMATIC TUBES, REPAIR MATERIAL, MANUFACTURES OF RUBBER NOT ELSEWHERE SPECIFIED

	Pneumatic Tubes				Tire Repair Material		Rubber Manufactures	
	Automobiles		Other					
	Number	Dollars	Number	Dollars	Pounds	Dollars	Pounds	Dollars
Total	101,306	174,923	7,065	7,503	73,405	33,059	546,236	288,102

COATED OR WATERPROOFED FABRICS.

	Oilcloth (not floors)		Coated or Artificial Leather		Waterproofed Autocloth		Waterproofed Clothing	
	Sq. yards	Dollars	Sq. yards	Dollars	Sq. yards	Dollars	Sq. yards	Dollars
Total	700,335	199,083	373,054	254,156	154,462	98,111	73,569	61,741

Report of Inventory—Production—Domestic Shipments of Pneumatic Casings—Inner Tubes—Solid Tires

January, 1922 to May, 1923

"Production" and Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.

"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and as a total represents all tires and tubes still owned by manufacturers as a domestic stock.

"Shipments" includes only stock forwarded to a *purchaser* and does not include stock forwarded to a warehouse, branch, or on a consignment basis, or abroad.

(Compiled by The Rubber Association of America, Inc.)

	PNEUMATIC CASINGS				INNER TUBES				SOLID TIRES			
MONTH	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments
January, 1922	66	4,174,216	2,055,134	1,596,806	66	5,246,647	2,343,393	1,889,724	11	181,769	40,224	33,294
February, 1922	66	4,691,329	2,084,308	1,562,365	65	6,141,956	2,596,774	1,702,583	11	183,448	39,492	36,805
March, 1922	63	5,183,286	2,645,790	2,073,963	63	6,991,118	3,017,511	2,090,737	11	182,197	49,433	48,350
April, 1922	65	5,464,336	2,401,187	2,086,651	65	7,230,096	2,650,573	2,329,343	11	173,748	46,664	52,309
May, 1922	65	5,523,095	2,721,503	2,639,273	65	7,189,552	2,970,696	2,938,947	11	170,904	57,640	60,711
June, 1922	64	5,042,147	2,838,890	3,133,260	64	6,186,534	3,130,629	3,973,679	11	169,808	66,089	63,408
July, 1922	63	4,834,106	2,476,636	2,695,095	63	5,675,839	3,068,199	3,630,744	11	176,375	71,505	60,425
August, 1922	63	4,629,392	2,905,209	3,029,823	63	5,207,228	3,808,224	4,220,055	11	189,698	84,313	69,435
September, 1922	64	4,612,037	2,504,744	2,502,106	64	5,164,757	3,501,442	3,558,971	11	200,016	82,767	66,797
October, 1922	64	4,682,958	2,674,662	2,588,770	64	5,488,033	3,787,758	3,420,680	11	213,942	85,480	71,275
November, 1922	62	4,964,976	2,783,134	2,379,708	61	6,210,053	3,850,908	3,075,023	11	234,684	85,775	61,466
December, 1922	59	4,599,208	2,656,942	2,934,079	59	5,732,125	3,411,074	3,825,949	10	244,061	77,221	64,570
January, 1923	62	4,695,916	3,127,270	2,994,297	62	5,838,310	3,951,885	3,748,651	11	262,462	83,383	60,611
February, 1923	60	5,224,387	3,217,987	2,588,639	60	6,771,958	4,039,202	3,001,697	11	270,191	75,457	63,394
March, 1923	58	5,670,601	3,865,726	3,322,637	57	7,740,945	4,875,414	3,828,315	11	265,843	79,788	77,144
April, 1923	56	6,088,272	3,539,326	2,976,160	55	8,394,184	4,259,558	3,535,635	11	260,631	71,468	72,609
May, 1923	57	6,906,594	3,659,986	2,757,764	57	9,292,223	4,317,537	3,414,115	10	268,323	77,288	67,147

Rubber Lands in Venezuela

THE Valmont-Noel Syndicate, New York City, controls a tract of land consisting of 200,000 hectares (about 494,200 acres) of virgin forest in the State of Apure, Venezuela.

This tract of land is private property, and its resources have never been tapped. It is rich in balata and india-rubber, being covered by great quantities of rubber trees, such as the "Mimusops Globosa", "Mimusops Balata Gaetn.", "Hevea Brasiliensis", "Hevea Minor Hemsl.", "Castilloa", and numerous others, not to mention a great variety of lactiferous lianas and reeds.

Balata: The annual exportation of Balata from Venezuela now amounts to about 2,000,000 kilograms (about 4,500,000 lbs.), and in this estimate is not included similar forest products of the gutta-percha type, such as Pendare and Purguo, of which considerable quantities are also being exported.

India-Rubber: The official Venezuelan Government statistics state that, during the year 1919 (no later figures are available), Ciudad Bolivar exported to the United States 136,796 kilograms (about 301,500 lbs.) of rubber, no figures being given for the total annual exportation from Venezuela. Moreover, even if official statistics were available, they could not be accurate, inasmuch as large quantities of Venezuelan rubber find their way out through Brazil by the route of the Rio Negro and other affluents of the Amazon River, outside of the control of the Venezuelan customs authorities.

Cultivation

In addition to the production of wild rubber, it is said that this tract offers a splendid field for the establishment of rubber plantations on a large scale.

The soil is marshy, consisting of clayish loam of great depth, constantly moist. Rains are abundant, and the temperature never falls below 18 deg. Centigrade (64.4 deg. Fahrenheit). Furthermore, it stands to reason that a plantation of "Hevea Brasiliensis" trees will do exceedingly well on soil to which this tree is indigenous.

Location

The land is splendidly located, being traversed by the River Apure, an affluent of the Orinoco. Both rivers are navigable, and the Delta of the Orinoco is reached in a few days. This region is therefore nearer to the United States than any other rubber-producing part of the world.

At the neighboring town of San Fernando de Apure (population 20,000) and at other small centers of population within a reasonable distance there is an ample supply of cheap native labor.

To a responsible group an option will be given on reasonable terms, giving sufficient time for inspection of the property.

MARKETS

Cottons and Fabrics

NEW YORK, JULY 2, 1923

The Department of Agriculture estimates the cotton production for the current year as totaling 11,412,000 bales, against 9,964,000 bales in 1922 and 7,953,641 bales in 1921. In 1920, 13,439,603 bales were produced from a total of 37,043,000 acres planted. Approximately 38,287,000 acres have been planted during the current cotton year.

The condition of the crop on June 25, and a preliminary estimate of acreage planted with comparisons follows:

	June 25, 1923	May 25, 1923	June 25, 1922	June 25, 1921	10-y'r Aver.
Condition	69.9	71.0	71.1	69.2	76.0

Indicated crop compares with final estimates of production in former years, in bales, as follows:

1923 Preliminary	11,412,000
1922 Final	9,964,000
1921 Final	7,953,641
1920	13,439,603
1919	11,420,763
1918	12,040,532

Indicated yield of lint, per acre, in pounds, on June 25, compares with the final of former years as follows:

1923	142.6
1922	141.6
1921	124.5
1920	178.4
1919	161.5
1918	159.6

Acreage planted:

	1923	1922	1921	1920
June 25	38,287,000	34,016,000	31,678,000	37,043,000

Upon announcement of the Department's report there was a temporary reaction in the cotton market, prices easing off about 25 points. Conservative estimates had placed the yield this year at around 10,970,000 bales, although there was some who estimated the production as high as 12,000,000 bales.

Exports of cotton also fell off considerably during May as compared with the same month last year. Exports of cotton in May 1923 totaled 160,568 bales, against a total of 469,367 bales in May, 1922.

The Crop In Texas

Rain and cold weather during June were said to have resulted in a set-back of the cotton crop. Conditions in Texas, however, were the best of all the cotton producing states. Normally Texas produces about one-third of the entire yield produced in this country. The crop in Texas is said to have good growth, cultivation being well up to the average, while the fields are clean and stands range from good and fair.

Farmers in the South have complained of being handicapped by a shortage of labor, excepting those in Texas and Oklahoma. Negro migration still continues, while other workers are also leaving the cotton fields for industrial centers. This shortage of labor threatens to be a serious hindrance in the harvesting of this year's cotton crop.

Mill Consumption

The Department of Agriculture reports that American mills have consumed 5,660,969 bales of cotton during the period from August 1, 1922 to May 31, 1923, shipments to foreign countries totaling 4,441,832 bales. The following table shows the supply and distribution of cotton in the United States for that period. (Linters not included.)

	Running bales 1920.	Running bales 1921.
On hand July 31 of previous year	4,286,785	3,563,162
Crops of seasons ending July 31	11,325,532	13,270,970
Imports from August 1 to May 31*	651,591	212,784
Total	16,263,908	17,046,916
Less domestic consumption from August 1 to May 31	5,339,000	4,020,613
	10,924,813	13,026,303
Less exports from Aug. 1 to May 31	6,099,371	4,660,236
Indicated supply on May 31	4,825,447	8,366,067

	Running bales 1922.	Running bales 1923.
On hand July 31 of previous year	6,534,360	2,831,553
Crops of seasons ending July 31	7,977,778	9,729,306
Imports from August 1 to May 31*	342,216	449,070
Total	14,854,354†	13,409,929
Less domestic consumption from August 1 to May 31	4,942,600	5,660,969
	9,911,754	7,748,960
Less exports from Aug. 1 to May 31	5,341,551	4,441,832
Indicated supply on May 31	4,570,203	3,307,128

*Imports are in equivalent 500-lb. bales.
†Includes 400,000 bales added to balance distribution.

While there had been some nervousness attending the publication of the Government's cotton report, final trading showed a nervous rather than a weak tone. Cotton prices as quoted on the New York Cotton Exchange on July 2 were as follows:

	Open.	High.	Low.	Close.	Prev. Day.
July	27.10	27.10	26.35	26.58-65	27.04
Oct.	24.55	24.55	23.83	24 14-18	24.57
Dec.	23.98	23.98	23.30	23.59-65	24.03
Jan.	23.60	23.60	23.00	23.37	23.68
March	23.50	23.55	22.90	23.22-24	23.65

Adequate Supply Assured

A crop of 11,412,000 bales, added to the likely carry-over of from 2,250,000 bales to 2,500,000 bales, will most likely prove an adequate supply for the coming season. It is pointed out that the foreign demand for American cotton has eased off, and that should domestic demands increase there is a sufficient supply of American cotton to satisfy domestic needs. The light export of cotton reflects the fact that foreign mills are running on an average at only 71 per cent of the pre-war rate. As a result stocks of cotton are not being drawn down to the low point anticipated a few months ago. Unless exports increase during July the carry-over in this country will total about 2,250,000 bales. This, however, will be small as stocks in the mills usually total about 1,200,000 bales at the end of the season.

For a number of years per cent con-

(Continued on Page 276)

TIRE FABRICS

There has been a rather quiet market for dealers in tire fabrics during the latter part of June. This is attributed to the fact that manufacturers have been tapering off in production. There has been some inquiries for Combed Egyptian Upper, quoted 67 @ 70. Carded peeler quotations eased off 2 point, quoted 56 @ 58.

CORD FABRICS				
Combed Sakellarides		.75	@	.80
Combed Peeler	lb.	.63	@	.66
Carded Peeler	lb.	.56	@	.58
Combed Egyptian uppers	lb.	.67	@	.70
Carded Egyptian uppers	lb.	.60	@	.63
SQUARE WOVEN				
17¼-ounce Egyptian uppers, combed	lb.	.65	@	.67
17¼-ounce Egyptian uppers, carded	lb.	.58	@	.62
17¼-ounce Sakellarides, combed	lb.	.72	@	.78
17¼-ounce Peeler, combed	lb.	.62	@	.64
17¼-ounce Peeler, carded	lb.	.55	@	.57

SHEETINGS — Generally speaking there has been a lack of interest on future trade, there being too much uncertainty on the part of buyers in the sheeting market. The effect of the Government's cotton report produced a feeling of uncertainty.

DUCKS—There was the seasonal quiet in the duck markets. Generally speaking selling houses have made no changes in their quotations. Goods, however, have been bought in some instances and slight concessions have been made to some.

SHEETINGS				
36-inch 2.50-yard	yd.	.17	@	—
36-inch 2.85-yard	yd.	.14½	@	—
40-inch 3.15-yard	yd.	.15	@	—
40-inch 3.60-yard	yd.	.13	@	—
36-inch 3.75-yard	yd.	.11½	@	—
40-inch 4.25-yard	yd.	.09¾	@	—
DUCKS				
Bleaching	lb.	.44½	@	.45
[illegible]	lb.	.44½	@	.45
Enameling	lb.	.51	@	.56
Shoe Ducks	lb.	.51	@	.53
Single filling	lb.	.22	@	.23½
Double filling	lb.	.24	@	.25
BURLAPS (Carload Lots)				
[illegible]-ounce 40-inch		5.55	@	5.60
[illegible]-ounce 40-inch		5.60	@	5.65
[illegible]-ounce 40-inch		7.45	@	7.50
[illegible]-ounce 40-inch		7.55	@	7.60
DRILLS				
36-inch 3.25-yard	yd.	.13	@	—
36-inch 2.75-yard	yd.	.14	@	—
36-inch 3.00-yard	yd.	.14¼	@	—
36-inch 2.50-yard	yd.	.12½	@	—
36-inch 3.95-yard	yd.	.10⅞	@	—
OSNABURGS				
36-inch 7-ounce		.17	@	.17½
40-inch 7-ounce		.18	@	—

Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, JULY 2, 1923—With the advent of lower tire prices in the middle of the selling season, sales have not increased appreciably with the result that tire plants are lessening production somewhat and decreasing their demands for chemicals and compounding ingredients. The market as a whole is inactive and slow with prices steady. In a few cases, however, items are maintaining a good demand, such as the zinc oxides, talc, lithopone and carbon black. Barytes demand continues with prices firm at $24.00 for prime white. Litharge prices remain stationary with deliveries being made on contract. Blanc Fixe manufacturers are still producing to capacity with prices at 4¼ to 4½ cents.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .90 @	.95
Aniline oil, drums	lb.	.16 @	.17
Diphenylguanidine	lb.	1.20 @	—
Excellerex,	lb.	.45 @	.50
Formaldehyde-Aniline	lb.	.52½ @	—
Hexamethylene-tetramine	lb.	.95 @	—
Paraphenylenediamine	lb.	1.55 @	1.60
Thiocarbanilide, kegs	lb.	.27 @	.30
Vulcocene	lb.	.35 @	—

Inorganic

Lead, sublimed blue	lb.	.09¼ @	—
Lead, white	lb.	.09¼ @	—
Litharge, domestic	lb.	.10½ @	.12
imported	lb.	.17 @	—
Lime, Superfine	lb.	.02 @	.02½
Magnesia, calcined, light,	lb.	.23 @	.24
extra light	lb.	.45 @	—
heavy	lb.	.05 @	.06
Orange Mineral	lb.	14.40 @	14.50

COLORS

Blacks

Carbon Black	lb.	.17 @	.21
Micronex		.17 @	.24
Lamp Black	lb.	.12 @	.40
Bone "	lb.	.05½ @	.07½
Drop "	lb.	.07½ @	.10
Ivory "	lb.	.15 @	.45

Blues

Prussian	lb.	.55 @	.60
Ultramarine	lb.	.08 @	.35
Cobalt	lb.	.21 @	.26

Browns

Iron oxide	lb.	.03¾ @	.05½
Sienna, Italian,	lb.	.06 @	.14¼
Umber, Turkey,	lb.	.03¾ @	.04⅝
Vandyke, domestic	lb.	.03½ @	.04

Greens

Chrome, light	lb.	.32 @	.34
medium	lb.	.35 @	.36
dark	lb.	.36 @	.45
commercial	lb.	.12 @	—

Reds

Antimony crimson, 15/17% F.S.	lb.	.36 @	.45
sulphur free	lb.	.39 @	.50
golden, 15/17% F.S.	lb.	.20 @	—
calcium and sulphur free	lb.	.40 @	—
red sulphuret 15/17% F.S.	lb.	.19½ @	—
Indian, English	lb.	.08 @	—
Commercial		.08 @	.12
Para toner	cwt.	1.00 @	1.10
Toluidine toner	lb.	2.75 @	3.00
Venetian red	lb.	.03½ @	.06
Vermillion, quicksilver, English	lb.	1.30 @	1.40
domestic	lb.	.25 @	.30

Whites

Alhalith	lb.	.07 @	.07½
Aluminum bronze	lb.	.55 @	.60
Azolith	lb.	.07 @	.07½
Lithopone, domestic (factory)	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Horse Head special	lb.	.08½ @	.09
XX red	lb.	.08 @	.08½
American Azo: ZZZ (lead free)	lb.	.08 @	.08½
ZZ (under 5 per cent leaded)	lb.	.07¼ @	.07¾
Z (8-10 per cent leaded)	lb.	.07¼ @	.07¾
Zinc Oxide—French Process			
White seal	lb.	.12 @	.12¼
Green seal	lb.	.10¾ @	.11¼
Silica	ton	10.00 @	12.00
Cadmium sulphide boxes	lb.	1.50 @	1.75
Phenol U. S. D. Drums	lb.	.52 @	.55
Red seal	lb.	.09¾ @	.10¼

Yellows

Chrome, light		.20 @	.21
dark and medium	lb.	.20 @	.21
Cadmium Sulphide	lb.	1.50 @	1.75
Ocher, French	lb.	.03¼ @	.03¾
domestic	lb.	.02½ @	.03

COMPOUNDING INGREDIENTS

Aluminum flake	ton	29.00 @	—
hydrate light	lb.	.19 @	.21
Ammonia carbonate,	lb.	.09 @	.10½
Barium carbonate,	ton	68.00 @	75.00
Barium Dust	lb.	.05 @	—
Barytes southern off-color, ton		15.00 @	20.00
Western, prime white	ton	28.00 @	—
Basofor	lb.	.04¾ @	—
Blanc fixe, dry f.o.b. wroks	lb.	.04 @	.04½
Carrara filler	lb.	.01½ @	.02
Chalk, precipitated, extra light	lb.	.04¼ @	.05
heavy	lb.	.03¼ @	.04
Clay, China, domestic,	ton	15.00 @	16.50
Dixie	ton	22.00 @	32.00
Blue Ridge	ton	20.00 @	30.00
Fossil flour	ton	60.00 @	—
Glues, extra white	lb.	.30 @	.40
medium white	lb.	.20 @	.26
cabinet	lb.	.18 @	.30
cabinet low grade	lb.	.16 @	.19
common bone	lb.	.08½ @	.14
Graphite flake, bbls.	lb.	.06½ @	.12
amorphous	lb.	.05 @	—
Infusorial earth, powdered	ton	60.00 @	—
bolted	ton	65.00 @	—
Liquid latex	gal.	1.30 @	—
Mica, powdered	lb.	.15 @	—
Rotten Stone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	12.00 @	15.00
Starch, powdered	cwt.	3.20 @	3.60
Talc, domestic	ton	15.00 @	18.00
French	ton	20.00 @	—
French, high grade	ton	40.00 @	—
Italian	ton	47.00 @	58.00
Terra Alba	cwt.	1.85 @	2.00
Tripoli, white	lb.	.02 @	.02½
Whiting, commercial	cwt.	1.00 @	1.25
English cliffstone	cwt.	1.50 @	2.50
gilder's bolted	cwt.	1.10 @	1.25
Paris white American	cwt.	1.25 @	1.50
Quaker	ton	13.00 @	15.00
Wood pulp XXX	ton	— @	—
" " X	ton	— @	—
Zinc Oxide— lead free	lb.	.08 @	—
5 per cent leaded		.07¼ @	.07¾
10 per cent lead sulphate	lb.	.07¼ @	.07¾
20 per cent lead sulphate	lb.	.07¼ @	.07¾
35 per cent lead sulphate	lb.	.07¼ @	.07¾

(Also see whites)

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Hard hydrocarbon	ton	33.00 @	42.00
Soft hydrocarbon	ton	30.00 @	40.00
Pioneer M.R.	ton	42.00 @	44.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00 @	50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00 @	45.00
Synpro, granulated, M. R. (factory)	ton	55.00 @	70.00

SOFTENERS

Acids

Acetic, 28 per cent	cwt.	3.38 @	3.63
Cresylic, 97 p.c.	gal.	1.15 @	1.20
95 p.c.	lb.	1.10 @	1.15
Muriatic, 20 degrees	cwt.	1.00 @	1.10
Nitric, 36 degrees	cwt.	4.50 @	5.00
Sulphuric, 60 degrees	ton	9.50 @	12.00
66 degrees	ton	15.00 @	16.00
Tartaric, crystals	lb.	.37¼ @	—

Alkalies

Caustic soda, 76 p.c.	cwt.	3.26 @	3.75
Soda ash, 58 p.c.	cwt.	1.95 @	2.30

Oils

Castor, No. 3, bbls.	lb.	.14 @	.15
Corn, crude, bbls.	lb.	.12⅛ @	.12½
refined	lb.	.13 @	—
Chinawood, bbls.	lb.	.25 @	.27
Cottonseed,		.10 @	.12¾
Glycerine, drums	lb.	.16 @	.16½
Linseed, domestic	gal.	1.09 @	1.14
imported	gal.	1.10 @	1.15
Palm Niger	lb.	.08½ @	.09
Lagos	lb.	.07¼ @	.07¾
Peanut, domestic, crude	lb.	.15 @	—
Pine, steam distilled	gal.	.70 @	.80
Rapeseed, refined	gal.	.83 @	—
blown	gal.	1.00 @	1.05
Rosin, first rectified	gal.	.46 @	—
second rectified	gal.	.48 @	—
Tar, commercial	gal.	.27 @	.28
Soya Bean		.12½ @	.12¾
Petrolatum, standard	lb.	.05 @	.08
dark amber	lb.	.03½ @	—

Resins and Pitches

Cumar resin, hard	lb.	.09 @	.10
soft	lb.	.09 @	.10
Tar Retort	bbl.	12.50 @	—
kiln burned	bbl.	13.50 @	—
Pitch, Burgundy	lb.	.05 @	.06
coal tar	lb.	.01½ @	.02
pine tar	lb.	.03 @	—
Rosin, grade K	bbl.	6.00 @	—
Shellac, fine orange	lb.	.90 @	—

Solvents

Acetone, drums	lb.	.25 @	—
Alcohol, denatured, No. 1 bbls.	gal.	.45 @	.47
Benzol, tanks	gal.	.27 @	.32
Benzol, 90 per cent	gal.	.25 @	.30
pure	gal.	.30 @	.35
Carbon bisulphide,	lb.	.06 @	.07
Tetrachloride	lb.	.09 @	.10½
Dimethylaniline	lb.	.42 @	.43
Motor gasoline, steel bbls.	gal.	.21½ @	—
Naptha, V. M. & P.	gal.	.20½ @	—
Toluene		.35 @	.38
Toluol, pure	gal.	.30 @	.35
Turpentine, spirits	gal.	1.20 @	—
wood	gal.	1.00 @	—

Waxes

Beeswax	lb.	.45 @	—
Carnauba, No. 1	lb.	.20 @	—
Ceresin, white	lb.	.11 @	.12
Bayberry	lb.	.28 @	.33
Montan, crude	lb.	.04½ @	.05
Ozokerite, black	lb.	.18 @	—
green	lb.	.27 @	.28
Paraffine	lb.	.02¾ @	.03
Sweet wax	lb.	.10 @	.12

SUBSTITUTES

Black	lb.	.09½ @	.14
White	lb.	.10 @	.16
Brown	lb.	.10 @	.15
Brown factice	lb.	.08 @	.16
White factice	lb.	.09½ @	.16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.38 @	—
Sulphur chloride (jugs)	lb.	.05 @	.06
" " (drums)	lb.	.05 @	.06
Sulphur flour (bbls.)	cwt.	2.75 @	3.30
(bags)	cwt.	2.00 @	2.40
Commercial		1.35 @	1.70
Superfine		2.00 @	2.40
Sublimed 1.2 per cent nurs.		— @	—
Bergenp't brand (bags)	cwt.	2.50 @	2.80
(bbls.)	cwt.	2.70 @	3.05

Cotton Markets

(Continued from Page 274)

dition stood at over 80 per cent. In 1911 it was 85.9, 81.3 in 1912, 80.9 in 1913 and 83.1 in 1918. For the years 1914, 1915 and 1916 estimates are shown to have been 78.6, 79.7 and 78.6 respectively. This year the crop condition stands at 69.9 per cent, against 71 per cent in 1921. The ten year condition average is 76 per cent. This would seem to indicate that the quality of the cotton is not improving. One purchasing agent says that he has noted a great deterioration in the evenness of the staple. This is mainly attributed to the ravages of the boll weevils, but outside of this damage there has been no signs of interest in the South in regard to improving the quality of the cotton except in isolated cases.

As has been intimated the demand from domestic mills may more than off-set the lack of demand by foreign buyers is set forth in a monthly summary of American cotton consumption for the period from August, 1922 to May, 1923. In March all records were shattered when 623,105 bales were consumed by American mills, while approximately 620,965 bales were used during May. Unless there is a sharp falling off in the demand during July, Government officials expect to see a new high record established for the twelve-month period, averaging 566,000 bales a month.

During May the spinning machinery in the mills ran 9,309,000,000 spindle-hours. Normal single shift running in that month called for only 8,539,000,000 spindle-hours. This indicated that mills ran at about 109 per cent of single shift normal. Since May reports state that mill operations have been easing off somewhat.

Adopt U. S. Standards

The universal standard for which American traders and producers have stood for during the past sixteen years has become an established fact. The Liverpool Cotton Association has adopted the international agreement, having reached an understanding with officials of the Department of Agriculture at Washington last month. Other foreign nations represented at the conference had previously ratified the compact. A cablegram from the Liverpool Cotton Association received by the Department of Agriculture states that the association in general meeting has agreed to the recommendations of its board of directors that the proposals be accepted.

The agreement provides that the official cotton standards of the United States for grade and color be recognized as universal standards and that the members of the Liverpool Board of Appeals be invested with authority to finally determine the true classification in accordance with the United States standards of cotton of American growth.

The Liverpool Cotton Association has also given notice that they desire to have certain changes made in the universal standards. Since the new cotton standards law requires that the changes proposed be agreed upon a year in advance of the time when they go into effect, the Liverpool Association announced that it was sending C. R. Taylor and J. C. Finlay to the United States to confer with representatives of the cotton trade and officials of the Department of Agriculture.

Scrap Rubber

NEW YORK, JULY 3, 1923

The scrap rubber market remained practically inactive during the past two weeks. Scrap dealers say that reclaimers still have sufficient quantities of scrap on hand to carry them until the first or middle of August. By that time the scrap rubber market should be considerably stronger.

Scrap dealers, furthermore, are well stocked. They are not buying from junk dealers, prices being too low to make it worth while for the junk dealers. While there were some shipments abroad during May the demand from the foreign market has suddenly ceased. Scrap dealers, therefore, expect that it will be some time before there is an upward movement in quotations of scrap.

Generally speaking there has been no change in quotations of scrap rubber, goods having been bought in some instances at slight concessions. Prices quoted at this date are:

Auto tire peelings	.01	@	.01¼
Standard White auto ....ton	20.00	@	25.00
Mixed auto .....ton	12.00	@	14.00
Bicycle tires .....ton	7.00	@	8.00
Clean solid truck tires	.01¼	@	.01½
Boots and shoes	.03	@	.03¼
Arctics, trimmed	.01¾	@	.02
Arctics, untrimmed	.01⅞	@	.01⅞
Inner tubes, No. 1	.04½	@	.05
Inner tubes, compounded	.03¼	@	.03½
Inner tubes, red	.03½	@	.04
Battery jars, clean hard rubber	.02	@	.02½
Rubber Hose	.00¾	@	.00⅞
Red packing	.01	@	.01¼
White druggist sundries	.04	@	—

Reclaimed Rubber

NEW YORK, JULY 2, 1923

There has been a revision downward in all grades of reclaimed since our last report. These changes have averaged between 1 and 2 cents. The market has been inactive with prices in sympathy with crude rubber which have lowered appreciably in the past fortnight. Demand has been poor.

Floating tube is now quoted at 15-15½ cents while friction reclaim previously quoted at 24 is now around 21 cents. Mechanicals and hose have however held their own at around 10-11 cents.

Quotations of this date are as follows:

Standard Reclaims			
Floating Tube	.15	@	.15½
Friction	.21	@	.22
Boots and Shoes (unwashed)	.10½	@	.11
Boots and Shoes (washed)	.12¼	@	.13
Mechanical	.10	@	.11
Hose	.10	@	.11
Tires, truck	.08½	@	.09
Tires, auto, black	.09	@	.09½
Black (washed)	.11	@	.11½
White	.13	@	.13½
Grey	.11	@	.11½

Crude Rubber

NEW YORK, JULY 3, 1923

The crude rubber market experienced a severe break during the past two weeks. Rubber in New York is selling between 2 and 3 cents lower than in London, whereas it generally sells for 2 or 3 cents above the London quotations.

One of the reasons that dealers attribute to the recent reaction is that there has been forced liquidation. This means that banks have called for more margin, and that those who have held large quantities of crude rubber, expecting a rise in prices, have been forced to sell. Another reason is that manufacturers have tapered off their production schedules, and this means that there is but little buying on their part. Tire dealers throughout the country are said to be carrying stocks ranging from 60 to 90 days, and their absence from the manufacturer's market has its natural effect on the crude rubber market.

Crude rubber dealers, however, feel certain that manufacturers will again be in the market by the end of August or the fore-part of September. There has been somebuying, but the general impression prevails that there are some sellers who are apparently eager to get orders. Speculative operators in rubber have been compelled to liquidate at least part of their holdings, and from now on the market should be firmer.

Para and the lower grades of plantations likewise eased off somewhat. Reports from the Government state that rubber exports from Para and Manaos totaled in January, 5,819,429 pounds, of which 4,030,787 pounds went to the United States and 1,788,642 pounds to Europe. In December, 1922 exports from Para and Manaos totaled 5,458,748 pounds, and in November, 1922, 3,938,964 pounds were exported. Buyers indicated no interest in offerings of the lower grades.

Quotations of this date are as follows:

Ribbed Smoked Sheets	.24⅞	@	.25
First Latex, spot	.24⅞	@	.24⅞
July, December	.26	@	.26¼
Amber Crepe No. 1, spot	.24½	@	.24¾
Amber Crepe No. 2, spot	.24⅛	@	.24¼
Amber Crepe No. 3, spot	.23¾	@	.24
Light Clean Thin Brown Crepe	.24½	@	.24¾
Commercially Clean Thin Brown Crepe	.23¾	@	.24
Specky Brown Crepe	.23½	@	.23¾
Roll Brown Crepe, spot	.23½	@	.23¾
Paras			
Madeira Fine	.27¼	@	.27½
Acre Fine	.26½	@	.26¾
Up-river Fine	.26½	@	.26¾
Up-river Medium	.25½	@	.25¾
Up-river Caucho Ball (shipment)	.24½	@	.24¾
Up-river Coarse	.23¼	@	.23½
Islands Fine	.26	@	.26¼
Islands Medium	.24	@	.24¼
Islands Coarse	.13	@	.13½
Cameta	.12¾	@	.13
Xingu Ball	.23¼	@	.23½
Tapajos Fine	.26½	@	—
Tapajos Medium	.22¾	@	.23
Pontianac			
Prime Pressed	.13	@	.14
Plantation	.07½	@	—
Bangermassin	.08	@	—
Siak Gutta Percha	.20¾	@	—
Prime Macassar	3.00	@	—
Balata			
Surinam Sheets	.80	@	.85
Columbia Block	.60	@	.65
Venezuela Block	.70	@	.75

RUBBER PATENTS

GRANTED JUNE 12, 1923

1,458,148 Cushion Wheel. Ralph Reed, Cincinnati, Ohio.

1,458,185 Glove Form. James R. Hemphill, Akron, Ohio, assignor to The Colonial Sign and Insulator Co., a Corporation of Ohio.

1,458,191 Armored Tire. Joseph Clement Mire, Feitel, La.

1,458,201 Shoe Sole. James H. Stedman, Braintree, Mass.

1,458,238 Tire Protector and Antiskidding Device. Herman A. Myer, Yakima, Wash.

1,458,257 Rubber Heel. Jean Van Melle, Dubuque, Iowa.

1,458,267 Resilient Tire. Vernon L. Buchman, Trenton, N. J.

1,458,351 Method and Apparatus for Producing Carbon. Chauncey Matlock, Brooklyn, N. Y., assignor to Monroe-Louisiana Carbon Co., Monroe, La., a Corporation of Delaware.

1,458,379 Vehicle Wheel. Harry N. Atwood, Smithfield, N. C., assignor to Rubwod, Inc., Lawrance, Mass.

1,458,380 Vehicle Wheel. Harry N. Atwood, Smithfield, N. C., assignor to Rubwood, Inc., Lawrance, Mass.

1,458,403 Vacuum Dehydrator. Charles E. Glessner, Portland, Ore.

1,458,406 Sectional and Demountable Rim. Louis B. Harvey, Buffalo, N. Y., assignor to Harvey Rim and Wheel Co., Inc., Buffalo, N. Y.

1,458,438 Auxiliary Valve for Inflating Valve Tubes. Rohde Reynolds, Houston, Tex.

1,458,446 Rubber Heel. Clarence W. Shaeffer, Chicago, Ill.

1,458,458 Pneumatic Tire. Marie Joseph Camille Andre, Paris, France.

1,458,476 Apparatus for Plying up Tire Fabric. John R. Gammeter, Akron, Ohio, assignor to the B. F. Goodrich Co., New York, N. Y.

1,458,532 Wheel and Tire for Road Vehicles. Frederick William Lanchester, London, England.

1,458,629 Vehicle Tire. Harry K. Raymond, Akron, Ohio, assignor to the B. F. Goodrich Co., New York, N. Y.

1,458,662 Tire. John Walter Miller, Kensett, Ark.

1,458,693 Manufacture of Rubber. William Feldenheimer, London, Walter William Plowman, East Sheen, and Philip Schidrowitz, London, England.

1,458,731 Table Pad. Henry Silver, Herkimer, N. Y.

1,458,732 Method of and Apparatus for Manufacturing Articles Comprising Super-posed Layers of Fabric. Thomas Sloper, Devizes, England.

1,458,776 Ball and Process for Making Same. Harry Nye, Akron, Ohio.

1,458,869 Horseshoe. Ichitaro Yoshida and Kichigoro Matsubayashi, Osaka, Japan.

GRANTED JUNE 19, 1923

1,458,926 Cushion Tire. Juan Antonio Xerez Burgos, Manilla, P. I.

1,459,021 Fountain Brush. Peter L. Ferm, Kansas City, Mo.

1,459,089 Resilient Wheel. Paul De Pfyffer, Kelowna, British Columbia, Canada.

1,459,145 Breast Protector. Madaline Van Deusen Davis, Milwaukee, Wis., assignor of one-half to Carrie Van Deusen, Milwaukee, Wis.

1,459,172 Inner Tube. Joseph C. Wise, Los Angeles, Calif.

1,459,244 Means for Making Pneumatic Tires. John F. Palmer, St. Joseph, Mich.

1,459,362 Tire. Michael T. Conroy, Akron, Ohio.

1,459,376 Detachable Tire Tread. Edwin A. Parker and Harry G. Evitt, Baltimore, Md.

1,459,377 Reenforcing Strip for Tires. Mark B. Peeples, Scotia, S. C.

1,459,401 Reenforced Ribbed Pneumatic Tube. Louis W. Hottel, Chicago, Ill.

1,459,430 Rubber Cushion Wheel. Eric Henry Aitkens, Sydney, New South Wales, Australia.

1,459,499 Waterproof Sheet Material and Process of Making the Same. Herman E. Brown, Kingston, N. Y., and Jordan Homer Stover, Nutley, N. J., assignors, by mesne assignments, to Multi-Fabric Corp., New York, N. Y.

1,459,529 Pneumatic Tire. Thomas Griffiths, Kensington, Liverpool, England.

1,459,544 Air Tube for Pneumatic Tires. Thomas Baker McLeroth, London, England, assignor to T. B. McLeroth (Tubes) Ltd., London, England.

1,459,555 Vulcanizer. Clarence A. Shaler, Waupon, Wis.

1,459,693 Method of Splitting Cord Tires. William Marchant Rand, Irvie C. Brook, and Frederick Cameron Butler, Vancouver, British Columbia, Canada.

GRANTED JUNE 26, 1923

1,459,736 Vehicle Wheel. Samuel Kramer, Newark, N. J.

1,459,744 Flexible Packing and Process for Making It. James Ostrander, Indianapolis, Ind., assignor to Grapho-Metal Packing Company, Indianapolis, Ind., a Corporation.

1,459,751 Tool For Tire Valves or the Like. Maximilian Charles Schweinert, New York, N. Y.

1,459,754 Packaged Article. William Henry Smith, Boston, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a Corporation of New Jersey.

1,459,867 Tire Tool. Jules A. Voirol, Hartford, Conn.

1,459,887 Patch For Tires. Earl C. Handschug, St. Louis, Mo.

1,459,892 Pneumatic Spring. James G. Hughes, Cincinnati, Ohio.

1,459,939 Blow-Off Valve For Pneumatic Tires. Alfred H. Urtubees, Minneapolis, Minn.

1,459,993 Demountable Rim. William Ryan, Paso Robles, Calif.

1,460,027 Air-Release Device. Walter A. E. Maddock, Hamilton, N. Dak.

1,460,053 Balloon Fabric And Method Of Making Same. Charles Angus Cleghorn, Woburn, Sands, England.

1,460,187 Wheel Tire. Robert B. Whitman, Boston, Mass.

1,460,237 Rainproof Garment. Chris Freeman, Blaine, Wash.

1,460,247 Tire. John George Johnson, Gordon, Pa.

1,460,250 Valve Cap. Henry P. Kraft, Ridgewood, N. J.

1,460,278 Demountable Rim. Joseph B. Roesch, Old Forge, Pa.

1,460,292 Reliner. Ira Crow Vance, Howell, Ark.

1,460,355 Air and Dust Cap for Pneumatic Tires. Alva K. Hinchman, Philadelphia, Pa., assignor of one-half to Reginald M. Adams, Philadelphia, Pa.

A Cotton Substitute

Discussing the world cotton situation in a recent address, Sir Milton Sheridan Sharp predicted the discovery of a cotton substitute. Not only has the price of cotton reached a point where search for a substitute is more worth while, but the future demand, coupled with an uncertain annual crop, brings into the realm of possibility the production of some type of substitute.

It is predicted that America must eventually import cotton, and spinners in other parts of the world look forward to the time when the cotton industry may be partially freed from its entire dependence on cotton crops. Whether this relief will come in part from a better knowledge of how to utilize short fiber or through the introduction of tropical fibers, grasses, and the like, or whether the laboratory must find a cheaper method of converting other types of cellulose into substitutes for cotton remains a question. The answer rests with the chemist.—(From *Industrial & Engineering Chemistry*, June 10, 1923.)

NEW INCORPORATIONS

CALIFORNIA

Great Western Rubber Products Co., $500,000. Principal office, Sacramento, Cal. Incorporators: A. T. Smith, H. W. Kugleh and H. L. MacGregory.

Pat & Ted Tire & Rubber Co.—$25,000. Principal office, Los Angeles, Cal.

DELAWARE

Magnum Products Co.—$21,000,000. Principal office, Wilmington, Del.

Keystone Rubber Ball Mfg. Co.—$10,000. Principal office, Wilmington. Incorporators: C. B. Otten, S. L. Mackey and L. C. Christy.

Powerton Tire and Rubber Co., manufacturer of rubber tires, tubes, etc.

INDIANA

Schaeffer Rubber Corporation—10,000 shares of no par value. Principal office: Indianapolis. Incorporators: LeRoy M. Wade, Henry Redel, and Clarence Schaeffer.

MASSACHUSETTS

Triangle Rubber & Supply Co. — $50,000. Principal office, Boston. Incorporators: Louis Kumins, Albert Swerdlove, William M. Silverman.

NEVADA

National Consolidated Rubber Co., Reno. Certified copy of articles filed.

Great Lakes Rubber Products Co.—$1,000. Principal office: Cleveland. Incorporators: Emanuel F. Wohlwerth, Sadye L. Wohlwerth and Frank J. Hoban.

Silica Rubber Co.—$500. Principal office: Akron. Incorporators: Charles W. McLaughlin and Homer L. Kinsley.

Lancaster Tire and Rubber Co.—$800,000. Principal office, Chicago, Ill. Incorporators: E. E. Leech and Lawrence Porter.

TEXAS

Sprague Tire and Rubber Co.—$10,000. Principal office, Dallas. Incorporators: E. H. Sprague, P. V. Greer and Ponder Greer.

VIRGINIA

Myers Rubber Co.—$25,000. Principal office, Richmond. Incorporators: E. P. Baker, R. H. Guill and J. E. Hunter.

TRADE MARKS

RESILIOCORD—No. 164,559. The Star Rubber Co., Akron, Ohio. For elastic vehicle tires composed wholly or in part of rubber and inner tubes for pneumatic tires.

An S blocked out in a square—No. 164,564. Seiberling Rubber Co., Akron, Ohio. For soles and heels for boots or shoes composed wholly or in part of rubber.

IRON-CLAD—No. 171,083. Iron Clad Patch Laboratories, Inc., New Orleans, La. For adhesive patches for automobile tires and inner tubes.

Mailman Factory To Feet Shoes—No. 173,886. The Philip Giard Shoe Co., Inc. Brockton, Mass. For boots and shoes—namely work shoes, street shoes and dress shoes of leather and leather and rubber.

N within two eleptically shaped circles—No. 174,971. National Aniline & Chemical Co., New York City. For Coal-tar, crudes, intermediates, dyestuffs, dyes, coal-tar colors, lakes for paper and clothes, as well as accelerators for vulcanizing purposes, chemicals designated as indicators and used in making chemical analyses.

FELCO—No. 178,337. Fellsway Rubber Co., Boston, Mass. For rubber pads for use in textile and other industries.

WIXOM—No. 160,825. The Manhattan Rubber Co., Passaic, N. J. For machinery belting, hose, and packing composed of rubber or rubber and fabric.

CONTINENTAL — No. 172,977. Continental-Caoutchouc-and Gutta-Percha-Compagnie, Hanover, Germany. For solid and pneumatic tires for vehicles of all kinds, inner tubes for hollow tires, tire valves, tire-treads, tire covers, tire protective devices, tire-repair parts and plugs and parts thereof. All made entirely or in material part of rubber or Caoutchouc.

WARMSTER—No. 175,580. United States Rubber Co., New Brunswick, N. J. For coats.

FIT-FORM — No. 176,046. Sampson-Martin Corp., New York City. For hot-water bags and hot-water bottles.

RED-OXIDE—The mark consists of an outline of a splotch of red pigment upon which the words "Red Oxide" appear—No. 177,684. Joseph A. McNulty, New York City. For red oxides.

MENGO—No. 150,871. Mengo Products Co., Pittsburg, Pa. For adhesive patches.

INTIRE—No. 158,900. Swartz Bros., Chicago, Ill. For automobiles and cycle tire boots and patches and patching material for rubber tires other than tire tape and adhesive gum.

PROM—No. 170,431. Franklin Simon & Co., New York City. For all kinds of clothing including shoes, boots, leggings, puttees, made out of leather, rubber, canvas, buckskin, or linen or compositions of similar materials.

OUTDOOR GIRL—No. 173,449. The L. D. Stickles Shoe Co., Red Wing, Minn. For shoes made of leather, rubber, and combination of said materials.

DUBLE-DUTI—No. 173,564. Louis N. Cohen & Co., New York City. For raincoats and rainproof men's and children's clothing.

STANDARD STUDENT—No. 173,733. Standard Oiled Clothing Co., New York City. For raincoats and rain articles, rubberized-surface cloth or cravenette-proofed cloth.

CLINCHER—No. 175,145. Hood Rubber Co., Watertown, Mass. For rubber shoes and boots.

TUADS—No. 175,631. R. T. Vanderbilt Co., New York City. For chemical compound used as an accelerator in the manufacture of rubber products to hasten the curing of rubber.

Mark is a red band which is attached to the cuff of a glove to form part thereof—No. 176,721. Davol Rubber Co., Providence, R. I. For surgeon's gloves.

VOLTAPE—No. 162,199. Respra, Inc., Providence, R. I. Electrical Insulating Tape impregnated with an adhesive substance.

THE RUBBER AGE BUYERS GUIDE

ACCELERATORS
Dovan Chemical Corp., New York.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
National Aniline & Chemical Co., Inc., New York.
Roessler & Hasslacher Chemical Co., New York.
Rubber Service Laboratories Co., The, Akron, O.
Wishnick-Tumpeer Chemical Co., Chicago.

ACCUMULATORS
Adamson Machine Co., Akron, O.
Akron Rubber Mold & Machine Co., Akron, O.
Allen Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Conn.
Wellman - Seaver - Morgan Co., Cleveland, Ohio.

ACIDS
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
National Aniline & Chemical Co., Inc., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

ACID TANKS
Birmingham Iron Foundry, Derby, Conn.
Devine, J. P., Co., Buffalo, N. Y.
Farrel Foundry & Machine Co., Ansonia, Conn.

AIR & STEAM METAL BAGS
Allsteel Ridewell Tire & Rubber Co., Dayton, Ohio.

AIR BRAKE HOSE
United States Rubber Co., New York.

AIR GOODS
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AIR MATTRESSES
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AIRPLANE AND BALLOON CLOTHS
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

ALBA WHITING
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Industrial Chemical Co., New York.
Wishnick-Tumpeer Chemical Co., Chicago.

ALCOHOL
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ALUMINUM FILLER
Wishnick-Tumpeer Chemical Co., Chicago

ALUMINUM FLAKE
Aluminum Flake Co., Akron, Ohio.
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Rubber Service Laboratories Co., The, Akron, O.

AMMONIA AQUA
Laidlow, Kelly & Co., New York.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ANGLE THERMOMETERS
Taylor Instrument Companies, Rochester, N. Y.

ANILINE OIL
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Klipstein, A., & Co., New York.
National Aniline & Chemical Co., Inc., New York.
Tyler Patterson Co., Clev'd., O.
Wishnick-Tumpeer Chemical Co., Chicago.

ANILINE OIL PLANTS
Devine, J. P., Co., Buffalo, N. Y.

ANOLIDE
National Aniline & Chemical Co., Inc., New York.

ANTIMONY, SULPHURETS
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
States Metals Co., Inc., New York.
Rare Metal Products Co., Belleville, N. J.
Richo Manufacturing Co., Utica, N. Y.
Tyler Patterson Co., Clev'd, O.
Typke & King, Mitcham, England.
Wishnick-Tumpeer Chemical Co., Chicago.

APRONS—RUBBER
Hodgman Rubber Co., N. Y. City.
I. B. Kleinert Rubber Co., N. Y. City.
Miller Rubber Co., Akron, Ohio.

ARTIFICIAL RUBBER
Carter Bell Mfg. Co., New York.
Stamford Rubber Supply Co., Stamford, Conn.

ASBESTINE
Butcher, L. H., Co., New York.
Fulper, Edward B., Trenton, N. J.
Harshaw, Fuller & Goodwin Co., The, Cleveland, O.
Tyler Patterson Co., Clev'd, O.
Wishnick-Tumpeer Chemical Co., Chicago.

ATOMIZERS
The Rubber Products Co., Barberton, Ohio.

AUTOCLAVES
Devine, J. P., Co., Buffalo, N. Y.

AUTOMOBILE COATS
Hodgman Rubber Co., Tuckahoe, N. Y.
United States Rubber Co., New York.

AUTO TOP FABRICS
Hodgman Rubber Co., Tuckahoe, N. Y.
Taylor, Armitage & Eagles, Inc., New York.

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